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GeoPT 39, England - SyMP-1, Syenite

Veranstalter: International Association of Geoanalysts and Geostandards Newsletter - GeoPT39
Ringversuchsmaterial: SyMP-1, Syenite
RV geschlossen: 2016 - 7
Literatur: Report - GeoPT39 Proficiency Testing Round 39 (Laborcode CRB = U22)

Hauptelemente [MA%]

	CRB	RV	1sRV	Z-Score
Na_2O	1,780	1,720	0,032	0,190
MgO	3,270	3,310	0,055	-0,380
Al_2O_3	13,150	12,990	0,177	0,460
SiO_2	55,300	55,520	0,607	-0,180
P_2O5	0,706	0,721	0,015	-0,480
K_2O	10,390	10,400	0,146	-0,050
CaO	3,160	3,140	0,053	0,190
TiO_2	0,790	0,799	0,017	-0,290
Fe_2O_3tot	7,780	7,755	0,114	0,110
MnO	0,102	0,101	0,003	0,240
L.O.I.	2,370	2,390	0,040	-0,250
C-tot. *	0,500	0,640	0,100	---

Spurenelemente [µg/g]

	CRB	RV	1sRV	Z-Score
Ba	5067,00	5220,00	115,00	-0,66
Ce	419,00	471,00	14,90	-1,74
Cl *	190,00	180,00	40,00	---
Cr	276,00	296,00	10,10	-0,99
Cu	121,00	115,00	4,50	0,67
F *	4380,00	3561,00	785,00	---
Ga	18,00	21,30	1,10	-1,54
Hf	21,00	23,75	1,20	-1,17
La	243,00	219,00	7,80	1,54
Nd	205,00	222,40	7,90	-1,10
Ni	221,00	230,00	8,10	-0,56
Pb	245,00	248,50	8,70	-0,20
Pr	43,00	57,30	2,50	-2,87
Rb	627,00	641,80	19,40	-0,38
Sm	23,00	40,60	1,90	-4,72
Sr	782,00	778,00	22,90	0,09
Th	73,00	124,20	4,80	-5,32
U	12,00	13,20	0,70	-0,83
V	154,00	156,50	5,90	-0,21
Y	65,00	48,00	2,10	-3,96

Zn	113,00	111,70	1,40	0,15
Zr	868,00	917,00	26,30	-0,93

Legende

CRB: Ergebnisse CRB – **RV:** Ergebnisse Ringversuch -- **1s-RV:** Standardabweichung Ringversuch
Z-Score: Differenz des Messwertes vom Mittelwert des Ringversuchs -- * Wert nicht zertifiziert

Geo*PT*39 — AN INTERNATIONAL PROFICIENCY TEST FOR ANALYTICAL GEOCHEMISTRY LABORATORIES — REPORT ON ROUND 39 (Syenite, SyMP-1) / July 2016

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*Keywords: proficiency testing, quality assurance, Geo*PT*, Geo*PT*39, round 39, SyMP-1, syenite*

Abstract

Results are presented for Geo*PT*39, the routine test material supplied in round thirty-nine of the International Association of Geoanalysts' Proficiency Testing programme for analytical geochemistry laboratories. The test material distributed in this round was a syenite, SyMP-1, supplied by Dr Stephen Wilson of the U.S. Geological Survey. In this report, the data contributed from 102 laboratories are listed, together with an assessment of consensus values, consequent *z*-scores and charts to show the distribution of contributed results and the overall performance of participating laboratories.

Introduction

This thirty-ninth round of the international proficiency testing programme, Geo*PT*, was conducted in a similar manner to earlier rounds. The programme is designed to be part of the routine quality assurance procedures employed by analytical geochemistry laboratories. The programme is organised by the International Association of Geoanalysts and is conducted in accordance with a published protocol available at (http://www.geoanalyst.org/documents/ GeoPT-protocol.pdf). The overall aim of the programme is to provide participating laboratories with *z*-score information for reported elemental determinations from which the laboratory can decide whether the quality of their data is satisfactory in relation both to their chosen fitness-for-purpose criteria and to the results submitted by other laboratories contributing to the round and can choose to take corrective action if this appears justified.

Steering Committee for Round 39: P.C. Webb (results coordinator), M. Thompson (statistical advisor), P.J. Potts and C.J.B. Gowing (analytical advisors), S.A. Wilson (provision of SyMP-1).

Timetable for Round 39:

Distribution of sample: March 2016.

Results submission deadline: 10th June 2016.

Release of report: July 2016

Test Material details

Geo*PT*39: The syenite test material, SyMP-1, was supplied by Dr Stephen Wilson. The test material was evaluated for homogeneity by the originator, and as a result, the sample was considered suitable for use in this proficiency test.

Submission of results

3655 results were submitted for Geo*PT*39 (SyMP-1) by 102 laboratories as listed in Table 1, where results designated as data quality 1 (see ***Z*-score analysis** section below) are shown in bold and results of data quality 2 are shown underlined. Results from all laboratories submitting data were used to assess respective assigned values. Regrettably there were three laboratories reporting 15 values of '0' (i.e. zero), for this round. We should emphasise that as stated in the ***Instructions to Analysts***, such values should not be reported. These 15 values were excluded from further consideration in the data assessment process.

Assigned values

Following procedures described in earlier rounds, robust statistical procedures were used to derive assigned mass fraction values [X_a] for this test sample, these being judged to be the best available estimates of its true composition. Values were assigned on the basis that: i) sufficient laboratories had contributed data for an element, and ii) visual assessment gave confidence that the results distribution, outliers aside, was symmetrically disposed. Part of this assessment involved examining a bar chart of contributed data for each element to judge the distribution of results (presented in Figures 1 and 2).

A few instances of possible multimodal data distribution were noted and these datasets were investigated further, taking account of the analytical procedures employed. As a result it was necessary to examine the contributed data for Co and Ni differently from normal. The distributions of data for Co and Ni are shown in Figures 0.1 and 0.2. In both cases there is evidence of analytical bias. For Co, the distribution of contributed XRF results does not coincide with measurements by other techniques: 24 XRF values are below 20 mg/kg, but only two are above, whereas for other analytical techniques there are 13 values below 20 mg/kg, and 27 values above. Our conclusion is that these data distributions demonstrate a clear bias in the Co XRF data, and therefore the decision was taken to omit these data when estimating the consensus value for Co, which was then based on the 40 remaining values. This underestimate in the XRF Co data is thought to be a result of systematic overestimation of the Fe Kß line interference on Co Kα or in the background correction for Co due to significant levels of Fe in this sample. For Ni the discrepancy is even greater (Figure 0.2), but relates specifically to XRF powder pellet measurements: 21 XRF values obtained from powder pellets are below 180 mg/kg, but only five are above, whereas for other analytical procedures, there are just 5 values below 180 mg/kg, but 46 values above, including 8 XRF values obtained from fusion discs. We interpret this as bias in the Ni XRF powder pellet data, and therefore the decision was taken to omit these data when estimating the consensus value for Ni, which was then based on the 46 remaining values. This underestimate in XRF powder pellet measurements is thought to be a result of Ni being present within iron

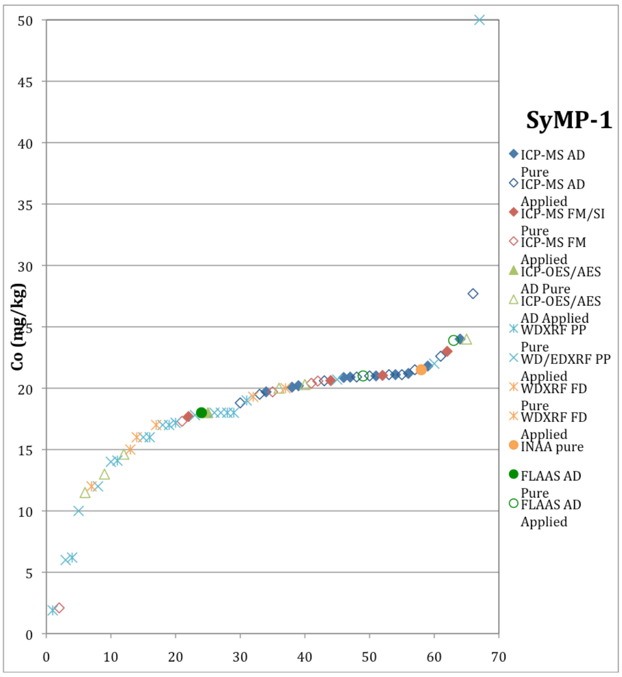


Figure 0.1 Ordered Co results distinguished by analytical procedure. See Appendix 2 for explanation of key.

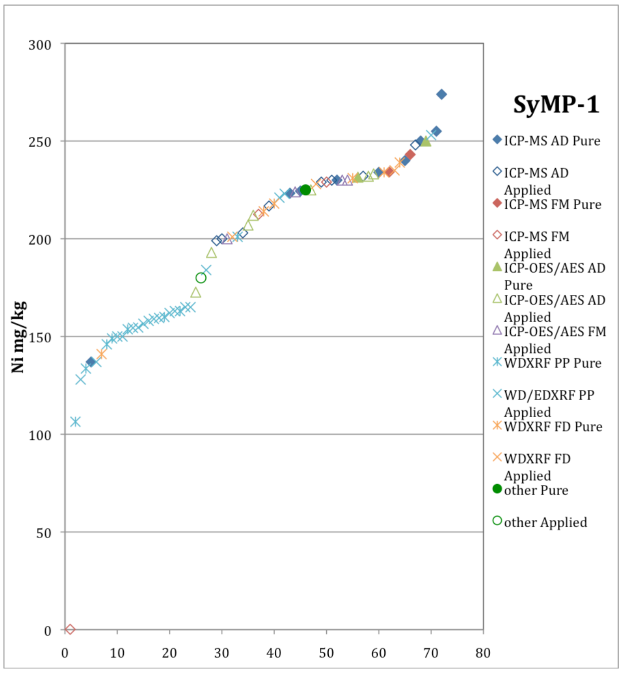


Figure 0.2 Ordered Ni results distinguished by analytical procedure. See Appendix 2 for explanation of key.

sulphide grains, where the absorption correction applied to characteristic Ni X-rays calculated on the basis of the average matrix composition would significantly underestimate the attenuation of Ni X-rays within these grains.

Table 2 lists assigned and provisional values for 11 major components and 44 trace elements in Geo*PT*39 (SyMP-1). Bar charts for the 55 elements/components of Geo*PT*39 that were judged to have satisfactory distributions for consensus values to be designated as assigned or provisional values are shown in Figure 1. These are: SiO_2, TiO_2, Al_2O_3, Fe_2O_3T, MnO, MgO, CaO, Na_2O, K_2O, P_2O_5, LOI*, Ag*, Ba, Be, Bi, Ce, Co*, Cr*, Cs, Cu, Dy, Er, Eu, Ga*, Gd, Hf, Ho, In*, La, Li, Lu, Mo*, Nb, Nd, Ni*, Pb, Pr, Rb, Sb*, Sc, Sm, Sn, Sr, Ta, Tb, Th*, Tl*, Tm, U, V, W*, Y, Yb, Zn and Zr*. Of these, provisional values were given to the 13 components/elements marked '*'. Instances of provisional status were recorded because either i) a relatively small number of results contributed to the consensus, or ii) the results were unduly dispersed in relation to the target value, or iii) the distribution of values was notably skewed, or iv) the dataset was reduced after the exclusion of data judged to be biased.

In 15 cases the robust mean was used to define the consensus value, but in 33 cases the median value was preferred. In 7 cases a mode was judged to provide the most satisfactory consensus value, two of which (TiO_2, Hf) were suitable for the value to be assigned, the other 5 being given provisional status (see Table 2). The procedure used to determine the mode involved the estimation of the mass fraction that corresponds to the maximum value of the kernel density distribution for the dataset in order to obtain a consensus value that represents the most coherent part of the data distribution.

Bar charts for the 14 elements/components: Fe(II)O, H_2O^+, As, B, C(org), C(tot), Cd, Cl, F, Ge, Hg, S, Se and Te are plotted in Figure 2 for information only, as the data were insufficient in number, the distribution too highly skewed or too variable for the reliable determination of a consensus.

Z-score analysis

As in previous rounds, laboratories were invited to choose one of two performance standards against which their analytical results would be judged:

Data quality 1 for laboratories working to a 'pure geochemistry' standard of performance, where analytical results are designed for geochemical research and where care is taken to provide data of high precision and accuracy, sometimes at the expense of a reduced sample throughput rate. For Geo*PT*39, 1487 results of data quality 1 were submitted.

Data quality 2 for laboratories working to an 'applied geochemistry' standard of performance, where, although precision and accuracy are still important, the main objective is to provide results on large numbers of samples collected, for example, as part of geochemical mapping projects or geochemical exploration programmes. For Geo*PT*39, 2172 results of data quality 2 were submitted.

The target standard deviation (H_a) for each element assessed was calculated from a modified form of the Horwitz function as follows:

$$H_a = k.X_a^{0.8495}$$

Where X_a is the mass fraction of the element; the factor k = 0.01 for pure geochemistry labs and k = 0.02 for applied geochemistry labs.

Z-scores were calculated for each elemental measurement submitted by each laboratory from:

$$z = [X - X_a] / H_a$$

Where X is the contributed measurement, X_a is the assigned value and H_a is the target standard deviation (all as mass fractions). *Z*-score values for results contributed to Geo*PT39* are listed in Table 3. Results designated as data quality 1 are shown in bold: results of data quality 2 are shown underlined. *Z*-scores derived from provisional values are shown in italics.

Participating laboratories are invited to assess their performance using the following criteria:– *Z*-score results in the range $-2<z<2$ are considered to be 'satisfactory' (in the sense that no action is called for by the participant). If the *z*-score for any element falls outside this range, especially if it is outside the range $-3<z<3$, it would be advisable for the contributing laboratory to examine its procedures, and if necessary, take action to ensure that determinations are not subject to unsuspected analytical bias.

Overall performance

A summary of the overall performance of individual laboratories for this round is plotted in multiple *z*-score charts in Figure 3. In these charts, the *z*-score performance for each element is distinguished by symbols that make it simple to identify whether the results were satisfactory or gave *z*-scores that exceeded the action limits. This chart is designed to help individual laboratories to judge their overall performance in this proficiency testing round. Participants should always review their *z*-scores in accord with their own fitness-for-purpose criteria.

Participation in future rounds

The benefit from proficiency testing arises from regular participation and laboratories are invited to contribute to the Geo*PT*40 round, the test sample for which will be distributed during September 2016.

Acknowledgements

The authors thank Liz Lomas for much-valued assistance in distributing this sample.

Appendix 1

Publication status of proficiency testing reports. Previous reports are available for download from the IAG website (http://www.geoanalyst.org/).

Geo*PT*1
Thompson M., Potts P.J., Kane J.S. and Webb P.C. (1996)
Geo*PT*1. International proficiency test for analytical geochemistry laboratories - Report on round 1. Geostandards Newsletter: The Journal of Geostandards and Geoanalysis, 20, 295-325.

Geo*PT*2
Thompson M., Potts P.J., Kane J.S., Webb P.C. and Watson, J.S. (1998)
Geo*PT*2. International proficiency test for analytical geochemistry laboratories - Report on round 2. Geostandards Newsletter: The Journal of Geostandards and Geoanalysis, 22 127-156.

Geo*PT*3
Thompson M., Potts P.J., Kane J.S. and Chappell B.W. (1999a)
Geo*PT*3. International proficiency test for analytical geochemistry laboratories - Report on round 3. Geostandards Newsletter: The Journal of Geostandards and Geoanalysis, 23, 87-121.

Geo*PT*4
Thompson M., Potts P.J., Kane J.S., Webb P.C. and Watson J.S. (1999b)
Geo*PT*4. International proficiency test for analytical geochemistry laboratories - Report on round 4. Published in the electronic version of Geostandards Newsletter: The Journal of Geostandards and Geoanalysis (Summer 2000).

Geo*PT*5
Thompson M., Potts P.J., Kane J.S., and Wilson S. (1999c)
Geo*PT*5. International proficiency test for analytical geochemistry laboratories - Report on round 5. Published in the electronic version of Geostandards Newsletter: The Journal of Geostandards and Geoanalysis (Summer 2000).

Geo*PT*6
Potts P.J., Thompson M., Kane J.S., Webb P.C. and Carignan J. (2000)
GEO*PT*6 - an international proficiency test for analytical geochemistry laboratories - report on round 6 (OU-3: Nanhoron microgranite) and 6A (CAL-S: CRPG limestone). International Association of Geoanalysts: Unpublished report.

Geo*PT*7
Potts P.J., Thompson M., Kane J.S., and Petrov L.L. (2000)
GEO*PT*7 - an international proficiency test for analytical geochemistry laboratories - report on round 7 (GBPG-1 Garnet-biotite plagiogneiss). International Association of Geoanalysts: Unpublished report.

Geo*PT*8
Potts P.J., Thompson M., Kane J.S., Webb, P.C. and Watson J.S. (2000)
GEO*PT*8 - an international proficiency test for analytical geochemistry laboratories - report on round 8 / February 2001 (OU-4 Penmaenmawr microdiorite). International Association of Geoanalysts: Unpublished report.

Geo*PT*9
Potts P.J., Thompson M., Webb, P.C. and Watson J.S. (2001)
GEO*PT*9 - an international proficiency test for analytical geochemistry laboratories - report on round 9 / July 2001 (OU-6 Penrhyn slate). International Association of Geoanalysts: Unpublished report.

Geo*PT*10
Potts P.J., Thompson M., Webb, P.C., Watson J.S. and Wang Yimin (2001)
GEO*PT*10 - an international proficiency test for analytical geochemistry laboratories - report on round 10 / December 2001 (CH-1 Marine sediment). International Association of Geoanalysts: Unpublished report.

Geo*PT*11
Potts P.J., Thompson M., Chenery S.R., Webb, P.C. and Watson J.S. (2002)
GEO*PT*11 - an international proficiency test for analytical geochemistry laboratories - report on round 11 / July 2002 (OU-5 Leaton dolerite). International Association of Geoanalysts: Unpublished report.

Geo*PT*12
Potts P.J., Thompson M., Chenery S.R., Webb, P.C. and Batjargal B. (2003)
GEO*PT*12 - an international proficiency test for analytical geochemistry laboratories - report on round 12 / January 2003 (GAS Serpentinite). International Association of Geoanalysts: Unpublished report.

Geo*PT*13
Potts P.J., Thompson M., Chenery S.R., Webb, P.C. and Kaspar H.U. (2003)
GEO*PT*13 - an international proficiency test for analytical geochemistry laboratories - report on round 13 / July 2003 (Köln Loess). International Association of Geoanalysts: Unpublished report.

Geo*PT*14
Potts P.J., Thompson M., Chenery S.R., Webb, P.C. and B. Batjargal (2004)
Geo*PT*14 - an international proficiency test for analytical geochemistry laboratories - report on round 14 / January 2004 (OShBO - alkaline granite). International Association of Geoanalysts: Unpublished report.

Geo*PT*15
Potts P.J., Thompson M., Chenery S.R., Webb, P.C. and Wang Yimin (2004)
Geo*PT*15 - an international proficiency test for analytical geochemistry laboratories - report on round 15 / June 2004 (Ocean floor sediment MSAN). International Association of Geoanalysts: Unpublished report.

Geo*PT*16
Potts P.J., Thompson M., Webb, P.C. and S.Wilson (2005)
Geo*PT*16 - an international proficiency test for analytical geochemistry laboratories - report on round 16 / February 2005 (Nevada basalt, BNV-1). International Association of Geoanalysts: Unpublished report.

Geo*PT*17
Potts P.J., Thompson M., Webb, P.C. and J. Nicholas Walsh (2005)
Geo*PT*17 - an international proficiency test for analytical geochemistry laboratories - report on round 17 / July 2005 (Calcareous sandstone, OU-8). International Association of Geoanalysts: Unpublished report.

Geo*PT*18
Webb, P.C., Thompson M., Potts P.J. and L. Paul Bedard (2006)
Geo*PT*18 - an international proficiency test for analytical geochemistry laboratories - report on round 18 / Jan 2006 (Quartz Diorite, KPT-1). International Association of Geoanalysts: Unpublished report.

Geo*PT*19
Webb, P.C., Thompson M., Potts P.J. and B. Batjargal (2006)
Geo*PT*19 - an international proficiency test for analytical geochemistry laboratories - report on round 19 / July 2006 (Gabbro, MGR-N). International Association of Geoanalysts: Unpublished report.

Geo*PT*20
Webb, P.C., Thompson M., Potts P.J. and M. Burnham (2007)
Geo*PT*20 - an international proficiency test for analytical geochemistry laboratories - report on round 20 / Jan 2007 (Ultramafic rock, OPY-1). International Association of Geoanalysts: Unpublished report.

Geo*PT*21
Webb, P.C., Thompson M., Potts P.J. and B. Batjargal (2007)
Geo*PT*21 - an international proficiency test for analytical geochemistry laboratories - report on round 21 / July 2007 (Granite, MGT-1). International Association of Geoanalysts: Unpublished report.

Geo*PT*22
Webb, P.C., Thompson, M., Potts, P.J. and Batjargal, B. (2008)
Geo*PT*22 - an international proficiency test for analytical geochemistry laboratories - report on round 22 / January 2008 (Basalt, MBL-1). International Association of Geoanalysts: Unpublished report.

Geo*PT*23
Webb, P.C., Thompson, M., Potts, P.J., Watson, J.S. and Kriete, C. (2008)
Geo*PT*23 - an international proficiency test for analytical geochemistry laboratories - report on round 23 / September 2008 (Separation Lake pegmatite, OU-9) and 23A (Manganese nodule, FeMn-1). International Association of Geoanalysts: Unpublished report.

Geo*PT*24
Webb, P.C., Thompson, M., Potts, P.J. and Watson, J.S. (2009)
Geo*PT*24 - an international proficiency test for analytical geochemistry laboratories - report on round 24 / January 2009 (Longmyndian greywacke, OU-10). International Association of Geoanalysts: Unpublished report.

Geo*PT*25
Webb, P.C., Thompson, M., Potts, P.J. and Enzweiler, J. (2009)
Geo*PT*25 - an international proficiency test for analytical geochemistry laboratories - report on round 25 / July 2009 (Basalt, HTP-1). International Association of Geoanalysts: Unpublished report.

Geo*PT*26
Webb, P.C., Thompson, M., Potts, P.J. and Loubser, M. (2010)
Geo*PT*26 - an international proficiency test for analytical geochemistry laboratories - report on round 26 / January 2010 (Ordinary Portland cement, OPC-1). International Association of Geoanalysts: Unpublished report.

Geo*PT*27
Webb, P.C., Thompson, M., Potts, P.J. and Batjargal, B. (2010)
Geo*PT*27 - an international proficiency test for analytical geochemistry laboratories - report on round 27 / July 2010 (Andesite, MGL-AND). International Association of Geoanalysts: Unpublished report.

Geo*PT*28
Webb, P.C., Thompson, M., Potts, P.J. and Wilson, S. (2011)
Geo*PT*28 - an international proficiency test for analytical geochemistry laboratories - report on round 28 / January 2011 (Shale, SBC-1). International Association of Geoanalysts: Unpublished report.

Geo*PT*29
Webb, P.C., Thompson, M., Potts, P.J. and Wilson, S. (2011)
Geo*PT*29 - an international proficiency test for analytical geochemistry laboratories - report on round 29 / July 2011 (Nephelinite, NKT-1). International Association of Geoanalysts: Unpublished report.

Geo*PT*30
Webb, P.C., Thompson, M., Potts, P.J., Long, D. and Batjargal, B. (2012)
Geo*PT*30 - an international proficiency test for analytical geochemistry laboratories - report on round 30 / January 2012 (Syenite, CG-2) and 30A (Limestone, ML-2). International Association of Geoanalysts: Unpublished report.

Geo*PT*31
Webb, P.C., Thompson, M., Potts, P.J and Wilson, S. (2012)
Geo*PT*31 - an international proficiency test for analytical geochemistry laboratories - report on round 31 / July 2012 (Modified river sediment, SdAR-1). International Association of Geoanalysts: Unpublished report.

Geo*PT*32
Webb, P.C., Thompson, M., Potts, P.J and Webber, E. (2013)
Geo*PT*32 - an international proficiency test for analytical geochemistry laboratories - report on round 32 / January 2013 (Woodstock Basalt, WG-1). International Association of Geoanalysts: Unpublished report.

Geo*PT*33
Webb, P.C., Thompson, M., Potts, P.J., Prusisz, B., and Young, K. (2013)
Geo*PT*33 - an international proficiency test for analytical geochemistry laboratories - report on round 33 / July-August 2013 (Ball Clay, DBC-1). International Association of Geoanalysts: Unpublished report.

Geo*PT*34
Webb, P.C., Thompson, M., Potts, P.J and Wilson, S. (2014)
Geo*PT*34 - an international proficiency test for analytical geochemistry laboratories - report on round 34 (Granite, GRI-1) / January 2014. International Association of Geoanalysts: Unpublished report.

Geo*PT*35
Webb, P.C., Thompson, M., Potts, P.J and Wilson, S. (2014)
Geo*PT*35 - an international proficiency test for analytical geochemistry laboratories - report on round 35 (Tonalite, TLM-1) / August 2014. International Association of Geoanalysts: Unpublished report.

Geo*PT*35A
Webb, P.C., Thompson, M., Potts, P.J and Wilson, S. (2014)
Geo*PT*35A - an international proficiency test for analytical geochemistry laboratories - report on round 35A (Metalliferous sediment, SdAR-H1) / August 2014. International Association of Geoanalysts: Unpublished report.

Geo*PT*36
Webb, P.C., Thompson, M., Potts, P.J and Wilson, S. (2015)
Geo*PT*36 - an international proficiency test for analytical geochemistry laboratories - report on round 36 (Gabbro, GSM-1) / January 2015. International Association of Geoanalysts: Unpublished report.

Geo*PT*36A
Webb, P.C., Thompson, M., Potts, P.J and Wilson, S. (2015)
Geo*PT*36A - an international proficiency test for analytical geochemistry laboratories - report on round 36A (Metal-rich sediment, SdAR-M2) / January 2015. International Association of Geoanalysts: Unpublished report.

Geo*PT*37
Webb, P.C., Thompson, M., Potts, P.J, Gowing, C.J.B. and Burnham, M. (2015)
Geo*PT*37 - an international proficiency test for analytical geochemistry laboratories - report on round 37 (Rhyolite, ORPT-1) / July 2015. International Association of Geoanalysts: Unpublished report.

Geo*PT*37A
Webb, P.C., Thompson, M., Potts, P.J, Gowing, C.J.B. and Wilson, S. (2015)
Geo*PT*37A - an international proficiency test for analytical geochemistry laboratories - report on round 37A (Blended sediment, SdAR-L2) / July 2015. International Association of Geoanalysts: Unpublished report.

Geo*PT*38
Webb, P.C., Thompson, M., Potts, P.J, Gowing, C.J.B. and Wilson, S.A. (2016)
Geo*PT*38 - an international proficiency test for analytical geochemistry laboratories - report on round 38 (Gabbro, OU-7) / January 2016. International Association of Geoanalysts: Unpublished report.

Geo*PT*38A
Webb, P.C., Thompson, M., Potts, P.J, Gowing, C.J.B. and Meisel, T. (2016)
Geo*PT*38A - an international proficiency test for analytical geochemistry laboratories – special report on round 38A (Modified harzburgite, HARZ01) / June 2016. International Association of Geoanalysts: Unpublished report.

Appendix 2. Explanation of keys to plots in Figures 0.1 and 0.2.

Analytical technique
ICP-MS — Inductively coupled plasma – mass spectrometry
ICP-OES/AES — Inductively coupled plasma – optical emission spectrometry
WD(ED)XRF — Wavelength dispersive (energy dispersive) X-ray fluorescence spectrometry
INAA — Instrumental neutron activation analysis
FLAAS — Flame atomic absorption spectrometry
Other — Unspecified

Sample preparation
AD — Acid digestion including special digestion
FM — Fusion of material before digestion or of residual material after digestion in combination and sintering
PP — Powder pellet
FD — Fusion disc

Fitness for purpose
Pure — Quality 1 data
Applied — Quality 2 data

Table 1 - GeoPT39 Contributed data for Syenite, SyMP-1. 10/06/2016

Lab Code		U1	U2	U3	U4	U6	U7	U9	U10	U11	U13	U14	U17	U18
SiO2	$g\ 100g^{-1}$	55.5	54.82	**56.05**	**55.74**	55.83	57.05	56.11	57.979	**55.077**	55.8	54.08	**54.78**	55.639
TiO2	$g\ 100g^{-1}$	0.82	0.82	**0.8**	**0.79**	0.86	0.79	0.79	0.846	**0.759**	0.79	0.75	**0.663**	0.807
Al2O3	$g\ 100g^{-1}$	12.9	13.1	**12.99**	**13.01**	13.22	12.54	13.03	13.565	**13.203**	13.1	12.84	**12.94**	12.983
Fe2O3T	$g\ 100g^{-1}$	7.8	8	**7.84**	**7.75**	7.62	7.23	7.91	8.297	**8.027**	7.87	7.79	**7.541**	7.822
Fe(II)O	$g\ 100g^{-1}$										3.27			
MnO	$g\ 100g^{-1}$	0.1	0.102	**0.104**	**0.1**	0.109	0.09	0.11	0.108	**0.089**	0.101	0.098	**0.1**	0.106
MgO	$g\ 100g^{-1}$	3.38	3.34	**3.31**	**3.32**	3.44	4.05	3.18	3.41	**3.321**	3.28	3.508	**3.283**	3.263
CaO	$g\ 100g^{-1}$	3.14	3.18	**3.32**	**3.14**	3.15	3.27	3.15	3.38	**3.161**	3.2	3.081	**2.977**	3.116
Na2O	$g\ 100g^{-1}$	1.73	1.88	**1.74**	**1.66**	1.63	1.55	1.58	1.874	**1.719**		1.906	**1.667**	1.697
K2O	$g\ 100g^{-1}$	10.4	10.42	**10.7**	**10.52**	10.25	10.35	10.47	11.03	**10.487**	10.9	10.226	**10.49**	10.717
P2O5	$g\ 100g^{-1}$	0.72	0.726	**0.753**	**0.66**	0.696	0.75	0.7	0.77	**0.711**	0.8	0.697	**0.703**	0.601
H2O+	$g\ 100g^{-1}$													
CO2	$g\ 100g^{-1}$													
LOI	$g\ 100g^{-1}$	2.38		**2.33**	**2.38**	1.83		2.49	2.27	**3.17**	2.1			2.406
Ag	$mg\ kg^{-1}$											0.246		
As	$mg\ kg^{-1}$		18	**16**								4.391	**3.607**	
B	$mg\ kg^{-1}$										36	45		
Ba	$mg\ kg^{-1}$		4503	**346**	**5311**	5143	3928	5186	5616	**5313.810**		54.08	**5633.300**	5162
Be	$mg\ kg^{-1}$				**22.2**	22.6	21.71		22.3	**19.27**	21.9	21.896		
Bi	$mg\ kg^{-1}$				**0.84**	0.673				**0.85**		0.76		
Br	$mg\ kg^{-1}$		1											
C(org)	$mg\ kg^{-1}$													
C(tot)	$mg\ kg^{-1}$										0.55			
Cd	$mg\ kg^{-1}$											0.286		
Ce	$mg\ kg^{-1}$		559.9	**225**	**513**	467	480.020		481.760	**519.860**	457	469.360	**511.3**	
Cl	$mg\ kg^{-1}$													
Co	$mg\ kg^{-1}$		17	**1.9**	**20.9**	27.7	10	14	20.58	**20.08**	21	19.7	**20.87**	13
Cr	$mg\ kg^{-1}$		265	**30**	**330**	260	221	273	306.620	**286.3**		272.5	**312**	295
Cs	$mg\ kg^{-1}$			**18**	**10.6**	10.83			10.8	**10.73**		6.86	**10.37**	
Cu	$mg\ kg^{-1}$		80	**3**	**119**	105	93	109	124.9	**110.2**	114	113.270	**120.3**	86
Dy	$mg\ kg^{-1}$		13.41		**12.4**	11.92	11.85		11.97	**13.2**		11.918	**11.93**	
Er	$mg\ kg^{-1}$		4.51		**4.07**	6.38	4.76		4.27	**4.87**		3.84	**3.483**	
Eu	$mg\ kg^{-1}$		10.33		**8.95**	15	11.85		8.96	**9.98**		8.379	**4.533**	
F	$mg\ kg^{-1}$													3876
Ga	$mg\ kg^{-1}$		20	**20**	**25.2**	21.5	21	20	25.55	**21.4**		16.3	**25.1**	27
Gd	$mg\ kg^{-1}$		31.3		**26.7**	40	27.82		26.66	**24.4**		24.775	**26.6**	
Ge	$mg\ kg^{-1}$						1.37							
Hf	$mg\ kg^{-1}$		11	**16**	**23.4**	20	22.62	23	23.78	**26.42**	39.3	23.49	**15.67**	6
Hg	$mg\ kg^{-1}$						0.015						**0.013**	
Ho	$mg\ kg^{-1}$		1.88		**1.82**	1.8	1.94		1.82	**1.93**		1.749	**1.54**	
I	$mg\ kg^{-1}$													
In	$mg\ kg^{-1}$					0.113								
La	$mg\ kg^{-1}$		250.1	**137**	**236**	219	237.510		215.430	**241.110**	217	213.349	**211**	
Li	$mg\ kg^{-1}$				**29.8**	30.5		32.7		**28.45**	30.6	29.43	**30.03**	30
Lu	$mg\ kg^{-1}$		0.37		**0.43**	0.565	0.47		0.44	**0.46**		0.409	**0.4**	
Mo	$mg\ kg^{-1}$		35	**3.9**	**36.8**	30	32.13		35.32	**32.75**		32.02	**25.53**	
Nb	$mg\ kg^{-1}$		23	**33**	**30.2**	25	25	24	24.39	**23.84**		26.51	**25.63**	
Nd	$mg\ kg^{-1}$		248	**69**	**229**	226	222.590		224.190	**239.180**		217.280	**196.7**	
Ni	$mg\ kg^{-1}$		163		**255**	162	137	158	230	**106.4**		212.510	**223.3**	200
Pb	$mg\ kg^{-1}$		243	**85**	**259**	232	245	244	250.790	**273.760**	248	257.110	**263.7**	100
Pd	$mg\ kg^{-1}$													
Pr	$mg\ kg^{-1}$		64		**58.4**	56.5	54.3		57.28	**58.63**		57.037	**56.93**	
Rb	$mg\ kg^{-1}$		624	**171**	**665**	627	636	629	637.210	**641.5**	637	580.2	**645**	
Re	$mg\ kg^{-1}$													
S	$mg\ kg^{-1}$								1064.900			1441		
Sb	$mg\ kg^{-1}$									**0.2**		0.204		
Sc	$mg\ kg^{-1}$		17.6		**16**	16.9	14	16	15.4		16.5			
Se	$mg\ kg^{-1}$											0.465	**0.25**	
Sm	$mg\ kg^{-1}$		45.05	**11**	**41.9**	40	39.08		40.36	**41.83**		39.57	**38.83**	
Sn	$mg\ kg^{-1}$				**8.68**		7.5	15	8.54	**9.18**		8.73		
Sr	$mg\ kg^{-1}$		720	**1515**	**800**	710	753	762	854.6	**776.2**	760	754.960	**777.7**	721
Ta	$mg\ kg^{-1}$				**1.45**		1.36		1.38	**1.34**		2.07		
Tb	$mg\ kg^{-1}$		3.25		**2.97**	4.41	3.37		2.97	**3.43**		2.689	**2.703**	
Te	$mg\ kg^{-1}$													
Th	$mg\ kg^{-1}$		133.940	**58**	**143**	120	105	116	124.750	**101**		114.640	**134.3**	
Tl	$mg\ kg^{-1}$				**4.2**	3.5			2.97			2.88	**4.083**	
Tm	$mg\ kg^{-1}$		0.46		**0.5**	0.537	0.54		0.49	**0.51**		0.474	**0.383**	
U	$mg\ kg^{-1}$		9	**2.7**	**14.1**	10.7	12.48	14	13.67	**15.09**		12.835	**12.47**	
V	$mg\ kg^{-1}$		157	**19**	**160**	163	186	165	163.2	**144.250**	149	142.5	**158.3**	
W	$mg\ kg^{-1}$			**4.5**			3.66			**5.03**		4.092		
Y	$mg\ kg^{-1}$		50	**24**	**52**	48	50	48	45.97	**51.94**	48	45.51		40
Yb	$mg\ kg^{-1}$		2.47		**2.92**	3.55	3.33		3.08	**3.25**		2.902	**2.27**	
Zn	$mg\ kg^{-1}$		115	**66**	**109**	109	121	112	116.3	**122.5**	108	107.8	**114.3**	93
Zr	$mg\ kg^{-1}$		786	**510**	**984**	858	770	907	971.970	**1002.550**	1059	847	**612.3**	385

Bold entries are Data Quality 1 - Underlined entries are Data Quality 2

Table 1 - GeoPT39 Contributed data for Syenite, SyMP-1. 10/06/2016

Lab Code		U19	U20	U21	U22	U23	U24	U25	U26	U27	U28	U30	U32	U33
SiO2	g 100g^{-1}	**55.34**	**55.17**	56.88	55.3	55.395	**56**	56.1	55.5	**55.96**		56.42	54.28	56.007
TiO2	g 100g^{-1}	**0.8**	**0.8**	0.75	0.79	0.79	**0.75**	0.79	0.747	**0.8**	**0.789**	0.79	0.794	0.826
Al2O3	g 100g^{-1}	**12.77**	**12.95**	12.98	13.15	12.885	**13.15**	12.1	12.5	**13.09**		13.17	12.66	13.016
Fe2O3T	g 100g^{-1}	**7.74**	**7.77**	7.32	7.78	7.789	**8.11**	8.14	7.61	**7.78**		7.63	7.9	8.066
Fe(II)O	g 100g^{-1}		**3**				**2.74**							
MnO	g 100g^{-1}		**0.101**	0.09	0.102	0.103	**0.095**	0.107	0.099	**0.127**	**0.102**	0.094	0.103	0.104
MgO	g 100g^{-1}	**3.36**	**3.29**	3.33	3.27	3.245	**3.02**	3.86	3.29	**3.28**		3.32	3.29	3.403
CaO	g 100g^{-1}	**3.22**	**3.21**	2.9	3.16	3.116	**3.03**	3.7	3.13	**3.21**		3.14	3.06	3.024
Na2O	g 100g^{-1}	**1.76**	**1.82**	1.89	1.78	1.715	**2.07**	1.58	1.61	**1.75**		1.84	1.74	1.718
K2O	g 100g^{-1}	**10.29**	**10.42**	10.59	10.39	10.55	**10.1**	9.86	10.3	**11.16**		10.44	10.18	11.038
P2O5	g 100g^{-1}	**0.71**	**0.71**	0.73	0.706		**0.68**	0.741	0.694	**0.71**		0.73	0.71	0.72
H2O+	g 100g^{-1}													
CO2	g 100g^{-1}													
LOI	g 100g^{-1}	2.23	**2.11**	2.29	2.37	3.21	**2.45**	1.9	2.63	**2.34**		2.43		2.13
Ag	mg kg^{-1}						**0.71**							
As	mg kg^{-1}		**7**							**1**				
B	mg kg^{-1}													
Ba	mg kg^{-1}	**5060**	**4987**	6317	5067	5289	**4915**	5330	5160	**3800**	**5149**		5230	5190
Be	mg kg^{-1}			16.57			**20.4**		22		**22.8**			
Bi	mg kg^{-1}										**0.85**			
Br	mg kg^{-1}				18									
C(org)	mg kg^{-1}													
C(tot)	mg kg^{-1}				4995								7018	
Cd	mg kg^{-1}				15		**0.08**			**3**				
Ce	mg kg^{-1}	**449**	**372**	517.620	419		**441**	387	472		**495**		471	
Cl	mg kg^{-1}				190			218						
Co	mg kg^{-1}		**17**		6		**18**		11.5	**16**	**20.2**			22
Cr	mg kg^{-1}	**407**	**320**		276		**329.7**	221	238	**264**	**305**		321	303
Cs	mg kg^{-1}								10.4		**10.8**			
Cu	mg kg^{-1}	121	**118**		121		**118.8**	169	121	**120**	**117**		111	117
Dy	mg kg^{-1}			12.63			**10.39**		12.1		**12.6**			
Er	mg kg^{-1}			4.86			**3.83**		3.82		**4.6**			
Eu	mg kg^{-1}			10.26			**8.24**		8.63		**9.09**			
F	mg kg^{-1}				4380			1830						
Ga	mg kg^{-1}		**20**	26	18						**23**			
Gd	mg kg^{-1}			34.33			**23.3**		28.9		**26**			
Ge	mg kg^{-1}			1.57					3.55					
Hf	mg kg^{-1}			17.85	21				25		**25**			
Hg	mg kg^{-1}													
Ho	mg kg^{-1}			1.75			**1.62**		1.65		**1.93**			
I	mg kg^{-1}				18									
In	mg kg^{-1}													
La	mg kg^{-1}	203	**257**	221.060	243		**181.4**		213		**225**		222	
Li	mg kg^{-1}										**31.1**			
Lu	mg kg^{-1}			0.5			**0.38**		0.41		**0.45**			
Mo	mg kg^{-1}				25		**36.8**		35.1		**31.3**			34
Nb	mg kg^{-1}	**22**	**27**	15	8			23	26.1		**30.6**			29
Nd	mg kg^{-1}		**160**	222.190	205		**192.3**	293	228		**236**			
Ni	mg kg^{-1}	165	**234**	184	221		**231.5**	223	207	**160**	**234**		230	150
Pb	mg kg^{-1}	**244**	**249**	239	245		**267.5**	250	263	**241**	**273**			257
Pd	mg kg^{-1}													
Pr	mg kg^{-1}			55.23	43		**46.9**		54.8		**61**			
Rb	mg kg^{-1}	**687**	**630**	589	627	754		645	1600		**643**			675
Re	mg kg^{-1}													
S	mg kg^{-1}				893	1660	**1772**	1010	1800				1512	
Sb	mg kg^{-1}				16									
Sc	mg kg^{-1}			8	4		**16.4**		8.9		**15.4**			
Se	mg kg^{-1}						**1.08**							
Sm	mg kg^{-1}			44.19	23		**35.14**		40.4		**42**			
Sn	mg kg^{-1}			10.42							**9.03**			
Sr	mg kg^{-1}	**763**	**818**	669	782	905	**718**	776	800		**802**			774
Ta	mg kg^{-1}			4	8						**1.48**			
Tb	mg kg^{-1}			3.63			**4.01**		2.85		**2.94**			
Te	mg kg^{-1}								4.3					
Th	mg kg^{-1}		**127**	125	73				117		**145**			112
Tl	mg kg^{-1}								3.95	**2**	**4.95**			
Tm	mg kg^{-1}			0.56			**0.5**		0.44		**0.52**			
U	mg kg^{-1}		**21**	13.25	12				12.9	**10**	**14.6**			
V	mg kg^{-1}	**174**	**145**	138	154		**155.8**		124	**160**	**157**		158	188
W	mg kg^{-1}								3					
Y	mg kg^{-1}	**47**	**43**	65	65		**44.1**		45.6		**52.9**		48	53
Yb	mg kg^{-1}			3.28			**2.8**		3.07		**3.18**			
Zn	mg kg^{-1}	**152**	**107**	117	113		**133**	116	100	**114**	**107**		115	114
Zr	mg kg^{-1}	**888**	**1022**	740	868	999	**742**	917	899		**1064**		922	955

Bold entries are Data Quality 1 - Underlined entries are Data Quality 2

Table 1 - GeoPT39 Contributed data for Syenite, SyMP-1. 10/06/2016

Lab Code		U34	U35	U36	U37	U38	U39	U40	U41	U43	U44	U45	U47	U48
SiO2	g 100g^{-1}		55.49		55.14	55.26	55.66	56.38	56.2	55.08	54.05	57.79	55.35	55.167
TiO2	g 100g^{-1}	0.809	0.801		0.8	0.81	0.8	0.74	0.82	0.8	0.73	0.71	0.809	0.79
Al2O3	g 100g^{-1}		13.04		12.88	12.85	13.12	12.92	13.06	13.23	13.06	12.75	12.95	12.873
Fe2O3T	g 100g^{-1}		7.8	7.93	7.71	7.85	7.77	7.36	7.84	7.87	7.42	6.11	7.759	7.653
Fe(II)O	g 100g^{-1}					3			2.94					
MnO	g 100g^{-1}		0.101	0.105	0.1	0.104	0.1	0.094	0.1	0.09	0.1	0.08	0.098	0.1
MgO	g 100g^{-1}		3.34	3.56	3.35	3.295	3.32	3.25	3.4	3.24	3.59	3.53	3.308	3.313
CaO	g 100g^{-1}		3.17	3.32	3.13	3.18	3.14	2.98	3.2	3.04	2.79	3.02	3.135	3.183
Na2O	g 100g^{-1}		1.74		1.75	1.72	1.65	1.67	1.74	1.71	1.7	1.47	1.757	1.71
K2O	g 100g^{-1}		10.41		10.4	10.53	10.4	10.7	10.52	10.38	10.29	10.01	10.56	10.37
P2O5	g 100g^{-1}		0.723		0.7	0.74	0.723	0.713	0.74	0.73	0.73	0.69	0.715	0.7
H2O+	g 100g^{-1}				0.1	0.7	0.15		0.39	0.18				
CO2	g 100g^{-1}				2.57									
LOI	g 100g^{-1}		2		2.38	2.5	2.06	2.41	2.24	2.56	2.05	0.32	2.388	2.405
Ag	mg kg^{-1}								0.15					
As	mg kg^{-1}			7.23		4.197	8.51		4.07		5			
B	mg kg^{-1}					41			38.6		83			
Ba	mg kg^{-1}	5150	5687	5326.100		5038.018	4933	5820	4610		4508	5330	5180	4718
Be	mg kg^{-1}					20.68	26		21.3		20	20.38		
Bi	mg kg^{-1}					0.780			0.87		3			
Br	mg kg^{-1}													
C(org)	mg kg^{-1}				0.15	1724								
C(tot)	mg kg^{-1}				0.7	6823		6940		0.68				6797
Cd	mg kg^{-1}					0.193	0.78		0.12					
Ce	mg kg^{-1}	484	439	504.1		477.619	509		433			820.1		410.8
Cl	mg kg^{-1}					145								215
Co	mg kg^{-1}	21.8	18	19.7		20.616	23		19.5		20	50		17.69
Cr	mg kg^{-1}	336	281	379.6		353.935	393		290		290	137	320	276.6
Cs	mg kg^{-1}	10.9		11.21		10.216	10.1		11.1					
Cu	mg kg^{-1}	123		107.8		108.223	102		122		117	85		103.5
Dy	mg kg^{-1}	11.4		11.73		12.201	11.8		13.3			12.76		11.06
Er	mg kg^{-1}	3.87		3.84		3.972	4.5		4.88			3.95		3.746
Eu	mg kg^{-1}	8.52		8.48		8.947	8.96		9.69			9.3		8.039
F	mg kg^{-1}					3914								3798
Ga	mg kg^{-1}		19	26.33		23.726	20		21.5			24		21
Gd	mg kg^{-1}	25.4		30.88		25.826	24.86		30.3			27.78		24.6
Ge	mg kg^{-1}					2.506			1.67			1.57		
Hf	mg kg^{-1}	15.2		23.56		22.344	16.4		25.4			23.3		21.29
Hg	mg kg^{-1}								0.017					
Ho	mg kg^{-1}	1.76		1.805		1.827	1.716		2.17			1.76		1.617
I	mg kg^{-1}													
In	mg kg^{-1}					0.100								
La	mg kg^{-1}	219	185	234.5		211.033	229		224			225.3		192.6
Li	mg kg^{-1}	34.1				30	28.8		27.5		28			26.66
Lu	mg kg^{-1}	0.426		0.45		0.436	0.448		0.54			0.48		0.394
Mo	mg kg^{-1}	42.9				36.349			36.3		38	36.8		
Nb	mg kg^{-1}	29.3	27	28.93		25.034	21		27			19		23.96
Nd	mg kg^{-1}	232	217	233.4		222.043	209		231			230.1		200.2
Ni	mg kg^{-1}	250	163	224.4		234.181	218		200		193	159		137
Pb	mg kg^{-1}	270	257	250.3		245.237	290		259		224	184		309
Pd	mg kg^{-1}													
Pr	mg kg^{-1}	56.9		60.4		57.192	52.9		64.1			60.24		50.11
Rb	mg kg^{-1}	664	681	649.9		621.942	633		746			560		632
Re	mg kg^{-1}													
S	mg kg^{-1}					1722		1930						1750
Sb	mg kg^{-1}	0.2				0.188								
Sc	mg kg^{-1}	16.3	16	15.57		16.23	12		15.4			20		18.97
Se	mg kg^{-1}					0.15								
Sm	mg kg^{-1}	39.9		42.41		41.277	38.43		43.5			41.66		37.51
Sn	mg kg^{-1}	20.8				10.595			9.94			6.17		
Sr	mg kg^{-1}	817	802	774.3		798.662	741	880	668		842	675	740	739
Ta	mg kg^{-1}	1.92		1.426		1.535	0.85		1.47			1.32		1.188
Tb	mg kg^{-1}	2.77		3.43		2.778	2.85		3.58			3.3		2.49
Te	mg kg^{-1}													
Th	mg kg^{-1}	130	115	131.7		125.916			138			16		115.1
Tl	mg kg^{-1}	4.79					3.4		3.59					
Tm	mg kg^{-1}			0.499		0.458	0.475		0.6			0.52		0.442
U	mg kg^{-1}	13.8	17	12.68		13.607	14.3		12.7			13.86		12.37
V	mg kg^{-1}	156	182	150.2		146.775	200		156		139	137	148	143.1
W	mg kg^{-1}					4.445			2.85			3.9		
Y	mg kg^{-1}	57.1	50	50.66		49.028	49		50.4		31	43		45.19
Yb	mg kg^{-1}	2.83		3		2.905	2.94		3.54			3.09		2.586
Zn	mg kg^{-1}	115	117	94.3		123.620	108		116		80	124	126	109.5
Zr	mg kg^{-1}	633	940	959.9		945.970	967		954			790	992	864.7

Bold entries are Data Quality 1 - Underlined entries are Data Quality 2

Table 1 - GeoPT39 Contributed data for Syenite, SyMP-1. 10/06/2016

Lab Code		U49	U50	U51	U52	U53	U54	U55	U56	U57	U58	U59	U60	U61
SiO2	g 100g^{-1}	56.07	**55.58**	**54.99**	55.504	**55.36**	55.177	**55.02**	**56.09**	56.01			54.87	
TiO2	g 100g^{-1}	0.84	**0.81**	**0.81**	0.803	**0.64**	0.753	**0.753**	**0.79**	0.839			0.78	
Al2O3	g 100g^{-1}	12.645	**12.94**	**13.05**	13.074	**13.17**	12.925	**12.64**	**12.95**	13.19			12.73	
Fe2O3T	g 100g^{-1}	8.015	**7.86**	**7.75**	7.772	**7.874**	7.74	**7.679**	**7.73**	7.14			7.72	
Fe(II)O	g 100g^{-1}					**3.14**	3.052			3.439				
MnO	g 100g^{-1}	0.115	**0.09**	**0.1**	0.097	**0.105**	0.101	**0.098**	**0.1**	0.089			0.1	
MgO	g 100g^{-1}	3.385	**3.22**	**3.29**	3.206	**3.23**	3.286	**3.306**	**3.37**	3.252			3.26	
CaO	g 100g^{-1}	3.35	**3.16**	**3.04**	3.185	**3.28**	3.159	**2.941**	**3.2**	2.95			3.16	
Na2O	g 100g^{-1}	1.745	**1.75**	**1.77**	1.816	**1.71**	1.72	**1.659**	**1.68**	1.62			1.67	
K2O	g 100g^{-1}	10.91	**10.53**	**10.3**	10.47	**10.43**	10.352	**10.35**	**10.42**	10.32			10.36	
P2O5	g 100g^{-1}	0.775	**1.01**	**0.7**	0.743	**0.712**	0.733	**0.705**	**0.7**	0.694			0.69	
H2O+	g 100g^{-1}					**0.77**	0.274							
CO2	g 100g^{-1}					**1.866**								
LOI	g 100g^{-1}	2.26	2.46	**2.41**	2.2	**2.55**	1.994	**2.45**	**2.51**	3.24	2.54		2.25	
Ag	mg kg^{-1}	2.7								0.214				
As	mg kg^{-1}			**2.6**						8.803	23.557	6.1	14	
B	mg kg^{-1}													
Ba	mg kg^{-1}	5499		**5485**	5118	6037	5293.120	**4467**	**5248**	4824	3575.667	5580.600	5450	**5508**
Be	mg kg^{-1}						22.065			24.55	16.993			**20.2**
Bi	mg kg^{-1}	0.8					0.77			0.689				
Br	mg kg^{-1}							**5**						
C(org)	mg kg^{-1}					**1719**								
C(tot)	mg kg^{-1}	5900				**6809**	7325			6150				
Cd	mg kg^{-1}	0.6		**7**			0.126			0.067				
Ce	mg kg^{-1}	491.1		**429**	423.8		448.840	**377**		400.640	352.260	456	406	**465**
Cl	mg kg^{-1}							**103**						
Co	mg kg^{-1}	20.7		**18**			20.91	**12**	**16**	17.3	14.623	17.8		
Cr	mg kg^{-1}	274.3		**247**	226.8		316.4	**291**	**310**	275.6	253.433		309	
Cs	mg kg^{-1}	31.3		**14**			10.914			9.963		11.9		**10.79**
Cu	mg kg^{-1}	110.6		**106**	148.7		120.9	**113**	**134**	101.370	124.733	114.8	115	**100.1**
Dy	mg kg^{-1}						11.798			9.916	12.545			**12.1**
Er	mg kg^{-1}						3.923			3.383	4.591			**4**
Eu	mg kg^{-1}						8.409			7.764	13.788			**9.29**
F	mg kg^{-1}					**3271**		**4545**						
Ga	mg kg^{-1}	19.9		**18**			21.346	**18**	**17**	28.43	21.322	17.9	21	
Gd	mg kg^{-1}						24.894	**17**		26.77	38.326			**25.5**
Ge	mg kg^{-1}									4.058				
Hf	mg kg^{-1}	25.1		**21**			23.31	**19**	**17**	17.1	30.413			**23**
Hg	mg kg^{-1}													
Ho	mg kg^{-1}						1.703			1.525	1.918			**1.711**
I	mg kg^{-1}													
In	mg kg^{-1}						0.104			0.143				
La	mg kg^{-1}	216.8		**233**	192.3		205.499	**192**		194.170	211.723	249.9	237	**217**
Li	mg kg^{-1}						29.45			24.22				**28.1**
Lu	mg kg^{-1}						0.421			0.384	0.339			**0.445**
Mo	mg kg^{-1}	26.6		**24**			37.827	**36**		31.18	26.633	28.86		
Nb	mg kg^{-1}	24.9		**26**	24.6		27.891	**16**	**20**	25.78	61.056	27.37	26	**19.9**
Nd	mg kg^{-1}	207.3		**194**	125.2		217.459	**202**		212.630	213.058			**223.3**
Ni	mg kg^{-1}	154.4		**146**	156.5		229.940	**231**	**214**	216.770	172.7		165	
Pb	mg kg^{-1}	231.8		**245**	235.4		253.440	**205**	**212**	242.970	190.767	262.3	257	**258.6**
Pd	mg kg^{-1}													
Pr	mg kg^{-1}				35.8		55.743			51.57	62.911			**55.7**
Rb	mg kg^{-1}	628.3		**656**	667.6		654.520	**660**	**633**	551.4	475.688	650.330	671	**631**
Re	mg kg^{-1}									0.011				
S	mg kg^{-1}				998	**1511**	1174	**792**		1705				
Sb	mg kg^{-1}	3.4		**8**			0.215			0.126				
Sc	mg kg^{-1}	14.4		**20**	35		16	**15**	**15**	18.59		17	18	**21.7**
Se	mg kg^{-1}	0.5								6.038				
Sm	mg kg^{-1}	38.8		**25**			39.506			32.31	44.753			**39.1**
Sn	mg kg^{-1}	12		**23**			9.92			7.125	5.25			
Sr	mg kg^{-1}	752.9		**778**	780.7	**829**	778.060	**670**	**788**	724.490	83.078	764.070	789	**795**
Ta	mg kg^{-1}						1.392			1.322				**0.99**
Tb	mg kg^{-1}						2.617			2.605	3.405			**3.09**
Te	mg kg^{-1}	4.8								0.427				
Th	mg kg^{-1}	115		**124**	126.5			**129**	**117**	114.370	135.030	122.4	129	**146**
Tl	mg kg^{-1}						3.618			3.415				
Tm	mg kg^{-1}						0.471			0.46	0.494			**0.47**
U	mg kg^{-1}	14.1		**14.4**	14.9		13.65	**8**	**17**	12.2	15.975	8.3	12	**13.1**
V	mg kg^{-1}	146.8		**174**			157.420	**179**	**167**	136.2	128.4	158.8	162	
W	mg kg^{-1}	3.7		**21**			3.871			3.157				
Y	mg kg^{-1}	44.6		**48**	50.1		47.087	**58**	**46**	45.25	42.881	44.51	50	**47.7**
Yb	mg kg^{-1}						2.795			2.401	3.091			**2.8**
Zn	mg kg^{-1}	110.3		**110**	118.5		115	**107**	**104**	93.93	82.293	118.030	112	
Zr	mg kg^{-1}	886.5		**975**	934.9		998.7	**827**	**1000**	856.680		933.1	892	**1059**

Bold entries are Data Quality 1 - Underlined entries are Data Quality 2

Table 1 - GeoPT39 Contributed data for Syenite, SyMP-1. 10/06/2016

Lab Code		U62	U63	U64	U65	U66	U67	U69	U72	U74	U75	U76	U77	U78
SiO2	g 100g^{-1}	55.53	**54.73**	55.53	**56.16**			54.833	**54.962**	**57.46**	**54.97**	55.5	**55.12**	55.28
TiO2	g 100g^{-1}	0.809	**0.79**	0.81	**0.69**			0.816	**0.827**	**0.63**	**0.96**	0.79	**0.706**	0.78
Al2O3	g 100g^{-1}	12.96	**12.74**	12.94	**11.86**		13	12.1	**13.66**	**13.36**	**12.64**	12.8	**12.68**	12.86
Fe2O3T	g 100g^{-1}	7.72	**7.72**	7.77	**7.49**		7.87	7.64	**7.978**	**7.38**	**7.62**	7.6	**7.934**	7.7
Fe(II)O	g 100g^{-1}			3.5								2.64		
MnO	g 100g^{-1}	0.099	**0.1**	0.1	**0.1**		0.106	0.096	**0.102**	**0.09**	**0.1**	0.1	**0.105**	
MgO	g 100g^{-1}	3.23	**3.27**	3.33	**5.29**		3.41	3.74	**3.425**	**3.31**	**3.26**	3.19	**3.187**	3.4
CaO	g 100g^{-1}	3.16	**3.12**	3.19	**3.78**		3.15	3.8	**3.35**	**3.31**	**3.1**	3.14	**3.138**	3.13
Na2O	g 100g^{-1}	1.69	**1.6**	1.72	**1.51**		1.71	1.53	**1.806**	**1.67**	**1.7**	1.85	**1.693**	1.75
K2O	g 100g^{-1}	10.31	**10.33**	10.42	**9.71**		10.8	10.4	**10.479**	**10.15**	**10.21**	10.4	**10.31**	10.35
P2O5	g 100g^{-1}	0.711	**0.71**	0.74	**0.69**			0.826	**0.763**	**0.69**	**0.7**	0.723	**0.724**	0.71
H2O+	g 100g^{-1}			0.7								8.86		
CO2	g 100g^{-1}			1.85		**1.209**								
LOI	g 100g^{-1}		**2.44**	2.55	**2.46**			2.702		**2.03**	2.41	2.07	**2.53**	2.31
Ag	mg kg^{-1}		**0.3**		**0.21**							0.4		0.21
As	mg kg^{-1}		**13.6**	4.2	**10**							6		4.1
B	mg kg^{-1}									**32**				
Ba	mg kg^{-1}		**5222**	5464	**6138**		5220	5230	**5039.600**	**5365**	5392	4800	**5987.800**	5960
Be	mg kg^{-1}		**22.9**	19.2	**20**					**22.4**		20.2	**25.8**	22.1
Bi	mg kg^{-1}			0.7			0.87					1.94		0.78
Br	mg kg^{-1}		0.46											
C(org)	mg kg^{-1}			1100								0.06		
C(tot)	mg kg^{-1}			6770		**3300**						0.69		
Cd	mg kg^{-1}				**0.04**			0.025		**0.17**		0.14		
Ce	mg kg^{-1}		**488**	471	**380**		484			**501**	**446.9**	492	**489**	503
Cl	mg kg^{-1}			160				189						
Co	mg kg^{-1}		**21.2**	20.4	**19**		21.1	23.89		**21.1**	**14.1**	21	**24**	22.6
Cr	mg kg^{-1}		**339**	299	**322**			211.140		**308**	**268.1**	296	**364.3**	299
Cs	mg kg^{-1}			11.4	**10.8**		10.5			**11.6**		9.77	**13.83**	11.25
Cu	mg kg^{-1}		**116**	120.6	**104**		111	149.8		**120**	**123.1**	132	**126.020**	126
Dy	mg kg^{-1}		**12.5**	12.83	**11.6**		11.6			**13**		12.1	**12.73**	13.5
Er	mg kg^{-1}		**4.31**	4.12	**3.45**		3.7			**4.67**		4.17	**4.19**	4.61
Eu	mg kg^{-1}		**9.13**	9.12	**8.1**		8.6			**11.2**		9.85	**8.48**	9.13
F	mg kg^{-1}										10525	0.39		
Ga	mg kg^{-1}		21.1	20	**282**		24			**23.9**	**16.5**	25	**22.54**	23.1
Gd	mg kg^{-1}		**29.7**	26.3	**25.5**		26.8			**35.3**		31.5	**27.36**	28.7
Ge	mg kg^{-1}			1	**12**					**2.64**		1.1		
Hf	mg kg^{-1}		22.9	27	**7.2**					**30.3**	**10.4**	7.47	**14.5**	25.5
Hg	mg kg^{-1}			0.016		**0.014**								
Ho	mg kg^{-1}		**1.84**	2.03	**1.68**		1.73			**1.89**		1.94	**1.89**	1.93
I	mg kg^{-1}													
In	mg kg^{-1}											0.1		0.12
La	mg kg^{-1}		**226**	226	**170**		219			**231**	**205**	250	**229.6**	250
Li	mg kg^{-1}		**25.2**	31			29.8	31.59		**31.9**		33	**43.1**	31.8
Lu	mg kg^{-1}		**0.44**	0.47	**0.35**		0.4			**0.47**		0.58	**0.4**	0.46
Mo	mg kg^{-1}		**35**	38	**35.2**		35			**29.4**	**27.9**	31.2	**51.84**	36.9
Nb	mg kg^{-1}		26.3	29	**21.2**		16			**33.2**	**27**	26.1	**31.58**	29.4
Nd	mg kg^{-1}		**236**	228	**185**		223			**261**	**203.2**		**227.2**	242
Ni	mg kg^{-1}		**230**	229	**201**		232	233.2		**240**	**153.7**	199	**273.9**	248
Pb	mg kg^{-1}		250	253.1	**168**		277	306		**280**	**235.8**	194	**207**	272
Pd	mg kg^{-1}													
Pr	mg kg^{-1}		**60**	61.3	**47.5**		58			**65.3**		57.7	**59.9**	59.6
Rb	mg kg^{-1}		622	642	**610**		559			**673**	**635.3**	626	**695.1**	700
Re	mg kg^{-1}													
S	mg kg^{-1}			1550		**1400**		1180			810	0.14		0.19
Sb	mg kg^{-1}		**0.21**	0.2	**0.33**		0.19					1.04		
Sc	mg kg^{-1}		17.3	15	**17.1**					**16.3**	**18.1**	15.7	**17.62**	15.5
Se	mg kg^{-1}		**20.4**		**12.8**									
Sm	mg kg^{-1}		**42.5**	42.08	**38.4**		41			**48.5**	**29.7**	40.7	**41.68**	43.6
Sn	mg kg^{-1}		8.7	9	**8.3**		8.2				**12.3**	6.2		8.5
Sr	mg kg^{-1}		748	786.7	**812**		781	838	**814.1**	**802**	**742.4**	870	**851.6**	849
Ta	mg kg^{-1}		1.2	1.3	**0.01**					**1.86**	**2.9**	0.88	**1.59**	
Tb	mg kg^{-1}		**3.01**	3.04	**2.6**		2.8			**3.58**		3.48	**2.93**	3.1
Te	mg kg^{-1}						0.33					0.39		
Th	mg kg^{-1}		**155**	137	**115**					**147**	**119**	139	**122**	133
Tl	mg kg^{-1}		**3.98**	3.9	**2.5**		4.1					2.7		3.85
Tm	mg kg^{-1}		**0.52**	0.51	**0.43**		0.43			**0.53**		0.6		0.5
U	mg kg^{-1}		**15.4**	14.4	**12.8**		13			**15.6**	**12.6**	12.2	**13.67**	15
V	mg kg^{-1}		165	152	**173**		149	57.31		**157**	**173.8**	163	**176.6**	165
W	mg kg^{-1}		4.5	5			2.2				**2.5**	2.1		
Y	mg kg^{-1}		43.7	50.3	**107**					**52.1**	**51.1**	49.4	**61.08**	51.1
Yb	mg kg^{-1}		**3.06**	3.16	**2.2**		2.8			**3.13**		3.3	**2.99**	3.26
Zn	mg kg^{-1}		**108**	101.3	**102**		111	93.83		**105**	**97.2**	140	**121.3**	116
Zr	mg kg^{-1}		853	1083	**786**			850	**977.5**	**1064**	**905.5**	226	**616**	1065

Bold entries are Data Quality 1 - Underlined entries are Data Quality 2

Table 1 - GeoPT39 Contributed data for Syenite, SyMP-1. 10/06/2016

Lab Code		U79	U82	U83	U84	U85	U86	U87	U88	U92	U93	U94	U95	U96
SiO_2	$g\ 100g^{-1}$	55.25	55.66	**55.517**	56.05		55.18	55.45	56.05		**55.324**	55.53	**56.96**	55.9
TiO_2	$g\ 100g^{-1}$		0.73	**0.786**	0.75		0.81	0.81	0.79	**0.767**	**0.79**	0.811	**0.75**	0.81
Al_2O_3	$g\ 100g^{-1}$		12.89	**13.03**	13.03		12.97	12.8	13.45	**12.773**	**12.898**	13.01	**12.68**	12.75
Fe_2O_3T	$g\ 100g^{-1}$		7.55	**7.737**	7.31		7.79	7.7	7.46	**8.006**	**8.52**	7.88	**7.82**	8.03
Fe(II)O	$g\ 100g^{-1}$													
MnO	$g\ 100g^{-1}$		0.09	**0.103**	0.09			0.1	0.087	**0.104**	**0.11**	0.106	**0.1**	0.098
MgO	$g\ 100g^{-1}$		3.33	**3.354**	3.26		3.34	3.25	3.35	**3.531**	**3.37**	3.36	**3.29**	3.27
CaO	$g\ 100g^{-1}$		3.04	**3.159**	2.97		3.14	3.16	3.25	**3.078**	**3.101**	3.223	**2.95**	3.6
Na_2O	$g\ 100g^{-1}$		1.81	**1.719**	1.63		1.65	1.71	1.73	**1.75**	**1.695**	1.65	**1.51**	1.66
K_2O	$g\ 100g^{-1}$		10.1	**10.406**	10.4		10.14	10.68	9.96	**10.239**	**10.465**	10	**11.35**	9.81
P_2O_5	$g\ 100g^{-1}$		0.71	**0.743**	0.743		0.73	0.72	0.79		**0.87**	0.721	**0.74**	0.73
H_2O^+	$g\ 100g^{-1}$													
CO_2	$g\ 100g^{-1}$								2.26					
LOI	$g\ 100g^{-1}$	2.4	2.42	**2.414**	2.42		2.37	2.32	2.53		**2.404**	2.28	**1.87**	2
Ag	$mg\ kg^{-1}$											6.5		
As	$mg\ kg^{-1}$	5		**8.615**					8.9	**4.2**	**24**			
B	$mg\ kg^{-1}$													
Ba	$mg\ kg^{-1}$		5198	**5185.552**		**4334.330**		5450	5030	**5130**		5386	**5501**	6900
Be	$mg\ kg^{-1}$		23.6	**23.229**					22.4					24
Bi	$mg\ kg^{-1}$			**0.647**										
Br	$mg\ kg^{-1}$													
C(org)	$mg\ kg^{-1}$								975					
C(tot)	$mg\ kg^{-1}$								7148					
Cd	$mg\ kg^{-1}$													
Ce	$mg\ kg^{-1}$		472	**432.948**		**510.480**			440	**500**		463	**475**	490
Cl	$mg\ kg^{-1}$								221	**120**				
Co	$mg\ kg^{-1}$		20.6	**17.180**				24	20.3	**21.5**		19.3	**18**	21.1
Cr	$mg\ kg^{-1}$		303	**270.125**				278	282	**329**		322	**307**	310
Cs	$mg\ kg^{-1}$		10.1	**9.993**		**11.36**				**11.2**		6.98		11.6
Cu	$mg\ kg^{-1}$	108	115	**119.195**				106	113		**106**	131	**114**	120
Dy	$mg\ kg^{-1}$		12.7	**11.513**		**12.2**			10.98	**13.8**			**11.2**	12.1
Er	$mg\ kg^{-1}$		4.33	**3.898**		**4.56**			4.02				**4.2**	3.95
Eu	$mg\ kg^{-1}$		9	**8.762**		**10.26**			8.12	**8.87**			**8.7**	8.77
F	$mg\ kg^{-1}$								3540					
Ga	$mg\ kg^{-1}$		25.6	**18.939**		**24.41**		24			**30**	21.5	**21**	19.8
Gd	$mg\ kg^{-1}$		29.3	**25.531**		**29.47**			25.8				**25**	29.7
Ge	$mg\ kg^{-1}$		2.2											
Hf	$mg\ kg^{-1}$		24.2	**24.220**		**25.49**			23.25	**24.8**		24.8		22.6
Hg	$mg\ kg^{-1}$											0.028		
Ho	$mg\ kg^{-1}$		1.83	**1.768**		**1.9**			1.66				**1.9**	1.73
I	$mg\ kg^{-1}$													
In	$mg\ kg^{-1}$													
La	$mg\ kg^{-1}$		216	**194.454**		**229.030**			202.9	**223**		218	**229**	220
Li	$mg\ kg^{-1}$		33.4	**26.426**					29.7				**28**	32
Lu	$mg\ kg^{-1}$		0.45	**0.455**		**0.47**			0.393	**0.28**			**0.4**	0.44
Mo	$mg\ kg^{-1}$			**32.754**					34.1		**35**	34.3	**33**	37
Nb	$mg\ kg^{-1}$		30.4	**25.531**		**27.17**			28.5		**27**	28.5	**198**	14
Nd	$mg\ kg^{-1}$		233	**211.227**		**235.2**			208	**221**		242	**211**	231
Ni	$mg\ kg^{-1}$		229					212	232		**149**	235	**225**	
Pb	$mg\ kg^{-1}$		269	**167.998**				246	237.9		**282**	262		240
Pd	$mg\ kg^{-1}$													
Pr	$mg\ kg^{-1}$		58.2	**54.044**		**60.71**			53				**50**	58
Rb	$mg\ kg^{-1}$		633	**679.400**		**650.350**			622	**646**	**663**	598	**569**	660
Re	$mg\ kg^{-1}$													
S	$mg\ kg^{-1}$			**0.17**					1544					
Sb	$mg\ kg^{-1}$			**0.170**								0.8		
Sc	$mg\ kg^{-1}$		16.7	**16.011**		**5**		14	15.02	**15.46**			**13**	16.3
Se	$mg\ kg^{-1}$													
Sm	$mg\ kg^{-1}$		41.1	**39.332**		**43.68**			37.86	**41.7**		45.6	**46**	42.5
Sn	$mg\ kg^{-1}$			**7.501**		**8.64**						7		8.9
Sr	$mg\ kg^{-1}$		794	**791.590**		**867.5**		746	801	**850**	**768**	775	**725**	825
Ta	$mg\ kg^{-1}$		1.49	**1.516**		**1.69**			1.2	**1.41**				
Tb	$mg\ kg^{-1}$		3.01	**2.768**		**3.68**			2.73	**2.78**			**2.96**	3.11
Te	$mg\ kg^{-1}$			**0.344**										
Th	$mg\ kg^{-1}$		127	**121.570**		**138.440**			116	**136.5**	**141**	139	**113**	135
Tl	$mg\ kg^{-1}$			**3.190**										3.46
Tm	$mg\ kg^{-1}$		0.51	**0.492**		**0.52**			0.444				**0.5**	0.46
U	$mg\ kg^{-1}$		13.8	**13.375**		**14.98**			12.1	**13.3**	**14**	17	**11**	14.2
V	$mg\ kg^{-1}$		156	**148.097**				150	157	**163**		161	**149**	170
W	$mg\ kg^{-1}$			**3.470**		**3.36**				**5.4**	**10**			5.2
Y	$mg\ kg^{-1}$		51.3	**50.219**		**47.73**			46.7		**80**	52.5	**42**	46.5
Yb	$mg\ kg^{-1}$		3.05	**2.930**		**3.07**			2.69	**3**			**2.9**	2.76
Zn	$mg\ kg^{-1}$	55	105	**117.469**				100	113	**108**	**112**	111	**112**	95
Zr	$mg\ kg^{-1}$		983	**893.138**		**1040.250**		1016	1001	**1000**	**904**	1026	**849**	860

Bold entries are Data Quality 1 - Underlined entries are Data Quality 2

Table 1 - GeoPT39 Contributed data for Syenite, SyMP-1. 10/06/2016

Lab Code		U97	U98	U99	U100	U101	U102	U103	U105	U106	U108	U109	U110	U111
SiO_2	g 100g^{-1}	55.08	49.8	**55.55**	29.1	55.484	57.67	54.74	55.6		53.7	55.6	**55.66**	59.01
TiO_2	g 100g^{-1}	0.68	0.674	**0.8**	4.42	0.819	0.77	0.78	0.8	0.82	0.37	0.79	**0.796**	0.8
Al_2O_3	g 100g^{-1}	12.96	13.81	**13.01**	17.05	13.278	12.73	14.89	12.94	13.6	21.9	14.9	**13.08**	12.92
Fe_2O_3T	g 100g^{-1}	7.19	7.34	**7.72**	2.3	7.989	6.91	7.6	7.85	8.58	2.88	7.8	**7.79**	7.91
Fe(II)O	g 100g^{-1}													
MnO	g 100g^{-1}	0.09	1.07	**0.102**	0.42	0.102	0.11	0.1	0.11	0.11	0.15	0.1	**0.103**	0.09
MgO	g 100g^{-1}	3.24	6.25	**3.37**	1.33	3.394	3.51	3.24	3.3	3.66	0.31	3.56	**3.28**	3.25
CaO	g 100g^{-1}	3.03	3.05	**3.13**	2.97	3.204	3.13	3	3.18	3.36	2.46	2.88	**3.18**	3.08
Na_2O	g 100g^{-1}	1.61		**1.76**		1.759	1.78	1.43	1.75	1.85	6.8	1.42	**1.73**	1.94
K_2O	g 100g^{-1}	10.29	9.13	**10.74**	20.4	10.519	10.557	10.53	10.34	11.4	8.76		**10.44**	10.31
P_2O_5	g 100g^{-1}	0.7	0.903	**0.72**	1.03	0.748	0.75	0.7	0.733		0.06		**0.726**	0.74
H_2O^+	g 100g^{-1}													
CO_2	g 100g^{-1}													
LOI	g 100g^{-1}	2.27		**1.95**		2.244	2.02	2.4	2.04		3.12	1.99	**2.08**	
Ag	mg kg^{-1}				6.89				0.22					
As	mg kg^{-1}				28			17	4.2					
B	mg kg^{-1}							248	68					
Ba	mg kg^{-1}	4742	5800	**4254.700**	393	5556	4950	6042	5364	5273	340		**5184**	
Be	mg kg^{-1}						18.61	10.23	21		7.7			
Bi	mg kg^{-1}						0.79		0.76					
Br	mg kg^{-1}													
C(org)	mg kg^{-1}													
C(tot)	mg kg^{-1}					6680			0.71					
Cd	mg kg^{-1}				4.78				0.05					
Ce	mg kg^{-1}	395	509	**324.1**			483.170		488	378	293.5		**489.420**	
Cl	mg kg^{-1}				39.89									
Co	mg kg^{-1}	17	543	**6.2**			12		21.5	18.8	2.1			
Cr	mg kg^{-1}		497	**212**	351		228	265.8	324	296	45.4		**316**	
Cs	mg kg^{-1}				55.12		11.03		11.1	9.78	11.62		**10.89**	
Cu	mg kg^{-1}	51	140	**119.9**	120		95	88	118	107	6.2		**119**	
Dy	mg kg^{-1}						11.72	10.9	12.2	10.2	4.1		**13.13**	
Er	mg kg^{-1}						4.94	3.87	4.1	3.27	2.1		**4.19**	
Eu	mg kg^{-1}						10.45	8.6	9	7.41	2.5		**9.42**	
F	mg kg^{-1}													
Ga	mg kg^{-1}	15	24.9	**20.3**			19		23		19.9		**20**	
Gd	mg kg^{-1}		42.3				27.9	29.56	26.1	24.9	8.5		**27.32**	
Ge	mg kg^{-1}						1.74	3.56	2					
Hf	mg kg^{-1}						26.35		24		9.5		**24.24**	
Hg	mg kg^{-1}								0.2					
Ho	mg kg^{-1}						1.71	1.55	1.8	1.46	0.8		**1.97**	
I	mg kg^{-1}		23.3											
In	mg kg^{-1}						0.13		0.11					
La	mg kg^{-1}	125	218	**179.4**			239.570	211.4	227	193	161		**226.510**	
Li	mg kg^{-1}							20	30	31.4				
Lu	mg kg^{-1}						0.41	0.37	0.4	0.3	0.3		**0.44**	
Mo	mg kg^{-1}			**26.5**			32.05	11	33.9		3.7			
Nb	mg kg^{-1}	30	20.7	**27.5**	1		24	33	29.5		42.3		**27.62**	
Nd	mg kg^{-1}		294				236.980	210.3	240	205	86.7		**229.380**	
Ni	mg kg^{-1}	201	128	**133.6**	253		150	224	225	203	0.2		**239**	
Pb	mg kg^{-1}	218	257	**243.2**	9.84		240	230	266.5	199	70.7		**263.780**	
Pd	mg kg^{-1}				2.5									
Pr	mg kg^{-1}		91.9				57.88	56.14	59.7	53	26.9		**60.05**	
Rb	mg kg^{-1}	644	664	**648.4**	682		630		672	655	182.5	580	**648.3**	
Re	mg kg^{-1}								0.003					
S	mg kg^{-1}				1113.910	1966		1500	1700					
Sb	mg kg^{-1}				30.34		0.07		0.17					
Sc	mg kg^{-1}			**12.4**			15	12.52	15.4		0.3		**15.5**	
Se	mg kg^{-1}								0.8					
Sm	mg kg^{-1}		22.3				40.73	37.8	43.5		12.5		**42.95**	
Sn	mg kg^{-1}				11.72		8.35	15	9		0.77			
Sr	mg kg^{-1}	744	784	**766.4**	7.02		797	477	815	808	1357.500	720	**794**	
Ta	mg kg^{-1}						0.48		1.35		1.77		**1.41**	
Tb	mg kg^{-1}						3.25		2.9	2.36			**3.09**	
Te	mg kg^{-1}				62.06		0.45							
Th	mg kg^{-1}		106	**127.6**	68		129	139.9	132.8	106	61.1		**133.560**	
Tl	mg kg^{-1}				6062		4.11		3.9		1.1			
Tm	mg kg^{-1}						0.49	0.39	0.5	0.36			**0.51**	
U	mg kg^{-1}		11.1	**12.2**	2.02		11.18		14.4	9.79	12.4		**13.86**	
V	mg kg^{-1}	122		**115**	1792		190	105	146	137	29.2		**158**	
W	mg kg^{-1}				121		2.14	30	5		5.1			
Y	mg kg^{-1}	79	54.9	**48**	30		45	49.6	48.9	44.1	25.6		**50.59**	
Yb	mg kg^{-1}						2.9	2.47	3.1	2.15	2.1		**2.99**	
Zn	mg kg^{-1}	116	120	**108.2**	127.610		120	46	107	112	154.9		**111**	
Zr	mg kg^{-1}	709	977	**910**	914	1283	941		1086		571.1	900	**1000**	

Bold entries are Data Quality 1 - Underlined entries are Data Quality 2

Table 1 - GeoPT39 Contributed data for Syenite, SyMP-1. 10/06/2016

Lab Code		U112	U116	U117	U118	U119	U120	U122	U123	U124	U125	U126	-	-
SiO_2	$g\ 100g^{-1}$	**56.31**	53.93	54.51	53.3	**57.37**		**56.32**		55.83	**53.93**	55.6		
TiO_2	$g\ 100g^{-1}$	**0.816**	0.82	0.77	0.64	**0.71**		**0.81**		0.795	**0.82**	0.831		
Al_2O_3	$g\ 100g^{-1}$	**13.29**	13.56	12.76	11.9	**13.67**		**13.05**		13.35	**12.45**	13		
Fe_2O_3T	$g\ 100g^{-1}$	**7.7**	8.64	7.59	7.58	**5.88**		**7.7**		7.74	**7.71**	7.78		
Fe(II)O	$g\ 100g^{-1}$					**2.72**		**3.045**			**3.61**			
MnO	$g\ 100g^{-1}$	0.100	0.13	0.093	0.09	**0.087**		**0.11**		0.14	**0.1**	0.101		
MgO	$g\ 100g^{-1}$	3.411	5.84	3.24	4.83	**2.51**		**3.34**		3.22	**3.14**	3.27		
CaO	$g\ 100g^{-1}$	3.207	3.48	3.05	2.83	**2.87**		**3.19**		3.12	**3.13**	3.11		
Na_2O	$g\ 100g^{-1}$	**1.84**	1.24	1.83	1.33	**1.73**		**1.76**		1.43	**1.76**	1.72		
K_2O	$g\ 100g^{-1}$	**10.23**	11.99	10.4	8.59	**10.42**		**10.55**		9.93	**10.4**	10.4		
P_2O_5	$g\ 100g^{-1}$	**0.707**	1.12	0.7	0.63	**0.7**		**0.72**		0.721	**0.67**	0.718		
H_2O^+	$g\ 100g^{-1}$										**0.72**			
CO_2	$g\ 100g^{-1}$										**2.44**			
LOI	$g\ 100g^{-1}$	1.56	2.29	2.49	2.02	**2.45**		**2.474**		2.4		2.06		
Ag	$mg\ kg^{-1}$	0.21		6.57				**0.57**						
As	$mg\ kg^{-1}$	7.2						**3.88**			47			
B	$mg\ kg^{-1}$	27												
Ba	$mg\ kg^{-1}$	5158		5900		**5220**		**5358**			**5293**	4879		
Be	$mg\ kg^{-1}$	24.54				**29**		**21.23**				20.9		
Bi	$mg\ kg^{-1}$			1.4		**1**		**0.71**						
Br	$mg\ kg^{-1}$													
C(org)	$mg\ kg^{-1}$	2900												
C(tot)	$mg\ kg^{-1}$											5820		
Cd	$mg\ kg^{-1}$					**1.11**	0.4	**0.23**			19			
Ce	$mg\ kg^{-1}$	657.070		506.1		**470**	487	**497.6**	**360.2**	486	**459**	451		
Cl	$mg\ kg^{-1}$							**95**			79			
Co	$mg\ kg^{-1}$	18		16		**21**		**21.04**		15	**20**	18		
Cr	$mg\ kg^{-1}$	320.570		268.3		**340**		**326.1**		322	**65**	256		
Cs	$mg\ kg^{-1}$	10		11.3		**10.7**	11.2	**11.04**		11	**12**	10.5		
Cu	$mg\ kg^{-1}$	100		107.9		**116**		**111.3**		121	**112**	119		
Dy	$mg\ kg^{-1}$	14.07				**11.3**	12.2	**12.53**	**11.51**	11.84		6		
Er	$mg\ kg^{-1}$	4.92				**3.72**	4.1	**4.13**	**3.4**			3.27		
Eu	$mg\ kg^{-1}$	10.01				**8.32**	8.7	**9.08**	**8.54**			8.44		
F	$mg\ kg^{-1}$	3000						**2855**			4143	0.291		
Ga	$mg\ kg^{-1}$	24.53		19.3		**24.7**	43.2	**21.12**		19	**23**	17.7		
Gd	$mg\ kg^{-1}$	30.6				**22.7**	23.4	**26.89**	**27.3**			22.3		
Ge	$mg\ kg^{-1}$	1.8		1.3			5.5	**1.34**		1.81				
Hf	$mg\ kg^{-1}$	30.38		22				**26.44**		11.4		21.1		
Hg	$mg\ kg^{-1}$	0.032												
Ho	$mg\ kg^{-1}$	2.12				**1.7**	1.9	**1.81**	**1.59**	1.79		1.56		
I	$mg\ kg^{-1}$			5.71										
In	$mg\ kg^{-1}$													
La	$mg\ kg^{-1}$	300.890		233.1		**216**	220	**230.6**	**186.9**	223	**145**	208		
Li	$mg\ kg^{-1}$	28				**30.1**				28.46				
Lu	$mg\ kg^{-1}$	0.51				**0.42**	0.5	**0.46**	**0.37**			0.391		
Mo	$mg\ kg^{-1}$	43.65		26.6		**30.8**		**36.93**			**18**	25.7		
Nb	$mg\ kg^{-1}$	33.73		25.7		**30.8**	27.8	**27.48**		23	**28**	27.2		
Nd	$mg\ kg^{-1}$	285.270		205.4		**216**	230	**257**	**189**	269	**194**	202		
Ni	$mg\ kg^{-1}$	180		159.5		**250**		**243.1**		228	**141**	154.6		
Pb	$mg\ kg^{-1}$	264.3		249.1		**220**		**264.2**		253	**250**	237		
Pd	$mg\ kg^{-1}$													
Pr	$mg\ kg^{-1}$	72.85				**56.9**	60.1	**58.49**	**42.84**	65.66		50.1		
Rb	$mg\ kg^{-1}$	660		643.2		**671**	619	**665.4**		624	**647**	625		
Re	$mg\ kg^{-1}$													
S	$mg\ kg^{-1}$		0.07	1200				**1682**			371	977		
Sb	$mg\ kg^{-1}$	0.17		2.61		**0.58**	0.4	**0.27**						
Sc	$mg\ kg^{-1}$	12		16.3		**15.8**	23.6	**3.89**		15.22	**16**	13.3		
Se	$mg\ kg^{-1}$													
Sm	$mg\ kg^{-1}$	52.53		32.5		**39.1**	42.8	**41.22**	**31.96**	39		40.2		
Sn	$mg\ kg^{-1}$	9.64		6.99		**9.87**	8.8	**9.19**			**3**	8.1		
Sr	$mg\ kg^{-1}$	755		768.9		**789**		**812.6**		708	**745**	756		
Ta	$mg\ kg^{-1}$	1.59					1.9	**1.4**				1.25		
Tb	$mg\ kg^{-1}$	3.24				**2.65**	3.6	**2.85**	**3.48**	3.55		2.56		
Te	$mg\ kg^{-1}$													
Th	$mg\ kg^{-1}$	81		119.4		**113**	122	**138.3**		134	**123**	120		
Tl	$mg\ kg^{-1}$	1.25		3		**3.4**								
Tm	$mg\ kg^{-1}$	0.6				**0.46**	0.5		**0.39**			0.413		
U	$mg\ kg^{-1}$	16.07		10.4		**12.2**	13.8	**14.32**		23	**10**	12.6		
V	$mg\ kg^{-1}$	160		164.4		**147**		**161.2**		180	**182**	176		
W	$mg\ kg^{-1}$	3.95		4.1		**4**	4.1	**4.37**			**2**	3.55		
Y	$mg\ kg^{-1}$	42		45.2		**52.8**	47.5	**47.98**	**51.61**	30	**52**	34.5		
Yb	$mg\ kg^{-1}$	3.45		1.2		**2.82**	4.2	**3.04**	**2.44**	2.77		2.38		
Zn	$mg\ kg^{-1}$	117		111.3		**115**		**111.2**		112	**100**	109		
Zr	$mg\ kg^{-1}$	834		878.9		**949**		**1061**		989	**876**	875		

Bold entries are Data Quality 1 - Underlined entries are Data Quality 2

Table 2 - GeoPT39 Assigned values and statistical summary for Syenite, SyMP-1.

	Assigned Value	Uncertainty of assigned value	Horwitz Target Value	Uncertainty/ Target	Number of reported results	Robust Mean of results	Robust SD of results	Median of results	Status of consensus value	Type of consensus value
	X_a	sdm	H_a	sdm/H_a	n					
	g 100g⁻¹	g 100g⁻¹	g 100g⁻¹			g 100g⁻¹	g 100g⁻¹	g 100g⁻¹		
SiO2	55.52	0.07513	0.6066	0.1238	89	55.52	0.7088	55.5	Assigned	Robust Mean
TiO2	0.7994	0.002613	0.01654	0.158	92	0.7886	0.03557	0.792	Assigned	Mode
Al2O3	12.99	0.02812	0.1766	0.1593	91	12.99	0.2683	12.98	Assigned	Robust Mean
Fe2O3T	7.755	0.01886	0.1139	0.1655	92	7.738	0.2248	7.755	Assigned	Median
MnO	0.1006	0.0007216	0.002843	0.2538	90	0.1006	0.006845	0.1	Assigned	Robust Mean
MgO	3.312	0.009506	0.05531	0.1719	92	3.328	0.1081	3.312	Assigned	Median
CaO	3.14	0.009429	0.05287	0.1784	92	3.138	0.121	3.14	Assigned	Median
Na2O	1.72	0.007902	0.0317	0.2493	88	1.713	0.0971	1.72	Assigned	Median
K2O	10.4	0.02419	0.1463	0.1654	90	10.4	0.2295	10.4	Assigned	Robust Mean
P2O5	0.7206	0.002915	0.01514	0.1926	86	0.7206	0.02704	0.72	Assigned	Robust Mean
LOI	2.391	0.02265	0.04194	0.54	79	2.312	0.2363	2.38	Provisional	Mode
	mg kg⁻¹	mg kg⁻¹	mg kg⁻¹			mg kg⁻¹	mg kg⁻¹	mg kg⁻¹		
Ag	0.2156	0.0092	0.02172	0.4235	15	1.003	1.31	0.3	Provisional	Mode
Ba	5220	37.92	115.1	0.3294	83	5194	455.6	5220	Assigned	Median
Be	21.9	0.3552	1.101	0.3227	39	21.54	2.209	21.9	Assigned	Median
Bi	0.79	0.02588	0.06547	0.3953	21	0.8162	0.1229	0.79	Assigned	Median
Ce	471	5.279	14.92	0.3538	71	462.3	48.3	471	Assigned	Median
Co	20.81	0.146	1.054	0.1385	68	18.87	3.642	19.7	Provisional	Mode
Cr	296	4.512	10.05	0.4487	73	292.6	43.78	296	Provisional	Median
Cs	10.92	0.1146	0.6096	0.188	47	10.92	0.7856	10.9	Assigned	Robust Mean
Cu	115	1.014	4.504	0.2251	77	114	11.01	115	Assigned	Median
Dy	12.05	0.1234	0.6629	0.1861	51	12.05	0.881	12.1	Assigned	Robust Mean
Er	4.122	0.07479	0.2664	0.2807	49	4.122	0.5235	4.1	Assigned	Robust Mean
Eu	8.948	0.09855	0.5146	0.1915	50	8.997	0.8859	8.948	Assigned	Median
Ga	21.32	0.4337	1.076	0.4031	63	21.78	3.299	21.32	Provisional	Median
Gd	26.77	0.4007	1.306	0.3069	51	27.21	3.158	26.77	Assigned	Median
Hf	23.75	0.3845	1.179	0.3261	55	21.72	5.277	23	Assigned	Mode
Ho	1.78	0.02137	0.1306	0.1637	50	1.78	0.1511	1.795	Assigned	Robust Mean
In	0.1115	0.005189	0.01241	0.4183	8	0.114	0.01422	0.1115	Provisional	Median
La	219	2.041	7.784	0.2622	71	217.4	21.16	219	Assigned	Median
Li	30	0.3875	1.438	0.2695	37	29.82	2.375	30	Assigned	Median
Lu	0.4332	0.006951	0.03929	0.1769	50	0.4277	0.05173	0.4332	Assigned	Median
Mo	33.45	0.6888	1.578	0.4366	52	32.44	5.399	33.45	Provisional	Median
Nb	26.51	0.4416	1.295	0.3411	71	26.26	4.321	26.51	Assigned	Median
Nd	222.4	2.522	7.886	0.3198	64	220.2	21.28	222.4	Assigned	Median
Ni	230	1.775	8.115	0.2187	72	199.2	43.39	212.3	Provisional	Mode
Pb	248.5	2.321	8.666	0.2679	76	245.5	24.88	248.5	Assigned	Median
Pr	57.28	0.6028	2.491	0.242	53	56.95	5.265	57.28	Assigned	Median
Rb	641.8	3.595	19.4	0.1853	75	641.8	31.14	643	Assigned	Robust Mean
Sb	0.1937	0.00764	0.01983	0.3852	24	0.498	0.4972	0.2125	Provisional	Mode
Sc	15.75	0.201	0.8319	0.2416	60	15.59	2.347	15.75	Assigned	Median
Sm	40.55	0.3796	1.858	0.2043	58	40.24	3.687	40.55	Assigned	Median
Sn	8.765	0.2731	0.5057	0.5401	40	8.962	2.114	8.765	Assigned	Median
Sr	778.1	5.476	22.85	0.2396	84	778.1	50.19	778	Assigned	Robust Mean
Ta	1.41	0.04089	0.1071	0.3818	38	1.45	0.3404	1.41	Assigned	Median
Tb	3.01	0.0593	0.204	0.2908	49	3.067	0.4048	3.01	Assigned	Median
Th	124.2	1.729	4.807	0.3597	67	124.2	14.15	124.8	Provisional	Robust Mean
Tl	3.532	0.1487	0.2336	0.6367	28	3.532	0.787	3.545	Provisional	Robust Mean
Tm	0.494	0.005746	0.04394	0.1308	45	0.486	0.04673	0.494	Assigned	Median
U	13.19	0.2369	0.7157	0.331	69	13.19	1.968	13.3	Assigned	Robust Mean
V	156.5	2.013	5.851	0.344	74	156.5	17.31	157	Assigned	Robust Mean
W	4.046	0.2343	0.2622	0.8935	34	4.074	1.306	4.046	Provisional	Median
Y	48	0.5307	2.144	0.2475	75	48.31	4.87	48	Assigned	Median
Yb	2.935	0.03392	0.1996	0.1699	52	2.912	0.3564	2.935	Assigned	Median
Zn	111.7	0.7708	4.392	0.1755	80	110.9	9.419	111.7	Assigned	Median
Zr	917	11.34	26.27	0.4317	79	916.8	111	917	Provisional	Median

Table 3 - GeoPT39 Z-scores for Syenite, SyMP-1. 10/06/2016

Lab Code	U1	U2	U3	U4	U6	U7	U9	U10	U11	U13	U14	U17	U18
SiO2	-0.01	-0.57	0.88	0.37	0.26	1.26	0.49	2.03	-0.73	0.23	-1.18	-1.22	0.10
TiO2	0.62	0.62	0.03	-0.57	1.83	-0.29	-0.29	1.41	-2.44	-0.29	-1.49	-8.23	0.23
Al2O3	-0.24	0.32	0.02	0.14	0.66	-1.26	0.12	1.64	1.23	0.32	-0.41	-0.26	-0.01
Fe2O3T	0.20	1.08	0.75	-0.04	-0.59	-2.30	0.68	2.38	2.39	0.51	0.16	-1.87	0.30
MnO	-0.11	0.24	1.19	-0.22	1.47	-1.87	1.65	1.30	-4.06	0.07	-0.46	-0.22	0.94
MgO	0.62	0.26	-0.03	0.15	1.16	6.68	-1.19	0.89	0.17	-0.28	1.78	-0.52	-0.44
CaO	0.00	0.38	3.40	0.00	0.09	1.23	0.09	2.27	0.40	0.57	-0.56	-3.08	-0.23
Na2O	0.17	2.53	0.65	-1.88	-1.41	-2.67	-2.20	2.44	-0.02	*	2.94	-1.66	-0.35
K2O	-0.01	0.05	2.02	0.79	-0.53	-0.19	0.22	2.14	0.57	1.69	-0.61	0.59	1.07
P2O5	-0.02	0.18	2.14	-4.00	-0.81	0.97	-0.68	1.63	-0.65	2.62	-0.78	-1.14	-3.95
LOI	-0.13	*	-1.46	-0.26	-6.69	*	1.18	-1.44	18.57	-3.47	*	*	0.18
Ag	*	*	*	*	*	*	*	*	*	*	0.70	*	*
Ba	*	-3.11	-42.34	0.79	-0.33	-5.61	-0.15	1.72	0.81	*	-22.44	3.59	-0.25
Be	*	*	*	0.28	0.32	-0.08	*	0.18	-2.39	0.00	0.00	*	*
Bi	*	*	*	0.76	-0.89	*	*	*	0.92	*	-0.23	*	*
Ce	*	2.98	-16.49	2.82	-0.13	0.30	*	0.36	3.28	-0.47	-0.05	2.70	*
Co	*	-1.81	-17.94	0.08	3.27	-5.13	-3.23	-0.11	-0.69	0.09	-0.53	0.06	-3.70
Cr	*	-1.54	-26.46	3.38	-1.79	-3.73	-1.14	0.53	-0.96	*	-1.17	1.59	-0.05
Cs	*	*	11.61	-0.53	-0.08	*	*	-0.10	-0.32	*	-3.33	-0.91	*
Cu	*	-3.89	-24.87	0.89	-1.11	-2.44	-0.67	1.10	-1.07	-0.11	-0.19	1.18	-3.22
Dy	*	1.02	*	0.52	-0.10	-0.15	*	-0.06	1.73	*	-0.10	-0.19	*
Er	*	0.73	*	-0.20	4.24	1.20	*	0.28	2.81	*	-0.53	-2.40	*
Eu	*	1.34	*	0.00	5.88	2.82	*	0.01	2.00	*	-0.55	-8.58	*
Ga	*	-0.61	-1.23	3.60	0.08	-0.15	-0.61	1.96	0.07	*	-2.33	3.51	2.64
Gd	*	1.73	*	-0.05	5.07	0.40	*	-0.04	-1.82	*	-0.76	-0.13	*
Hf	*	-5.41	-6.57	-0.30	-1.59	-0.48	-0.32	0.01	2.26	6.59	-0.11	-6.85	-7.53
Ho	*	0.38	*	0.30	0.08	0.61	*	0.15	1.15	*	-0.12	-1.84	*
In	*	*	*	*	0.06	*	*	*	*	*	*	*	*
La	*	2.00	-10.53	2.18	0.00	1.19	*	-0.23	2.84	-0.13	-0.36	-1.03	*
Li	*	*	*	-0.14	0.17	*	0.94	*	-1.08	0.21	-0.20	0.02	0.00
Lu	*	-0.80	*	-0.08	1.68	0.47	*	0.09	0.68	*	-0.31	-0.84	*
Mo	*	0.49	-18.73	2.12	-1.09	-0.42	*	0.59	-0.44	*	-0.45	-5.02	*
Nb	*	-1.36	5.01	2.85	-0.58	-0.58	-0.97	-0.82	-2.06	*	0.00	-0.68	*
Nd	*	1.62	-19.45	0.84	0.23	0.01	*	0.11	2.13	*	-0.32	-3.26	*
Ni	*	-4.13	*	3.08	-4.19	-5.73	-4.44	-0.00	-15.23	*	-1.08	-0.83	-1.85
Pb	*	-0.32	-18.87	1.21	-0.95	-0.20	-0.26	0.13	2.91	-0.03	0.50	1.75	-8.57
Pr	*	1.35	*	0.45	-0.16	-0.60	*	0.00	0.54	*	-0.05	-0.14	*
Rb	*	-0.46	-24.26	1.20	-0.38	-0.15	-0.33	-0.12	-0.01	-0.12	-1.59	0.17	*
Sb	*	*	*	*	*	*	*	*	0.32	*	0.26	*	*
Sc	*	1.11	*	0.30	0.69	-1.05	0.15	-0.21	*	0.45	*	*	*
Sm	*	1.21	-15.91	0.73	-0.15	-0.40	*	-0.05	0.69	*	-0.26	-0.93	*
Sn	*	*	*	-0.17	*	-1.25	6.17	-0.22	0.82	*	-0.03	*	*
Sr	*	-1.27	32.25	0.96	-1.49	-0.55	-0.35	1.67	-0.08	-0.40	-0.51	-0.02	-1.25
Ta	*	*	*	0.37	*	-0.23	*	-0.14	-0.65	*	3.08	*	*
Tb	*	0.59	*	-0.20	3.43	0.88	*	-0.10	2.06	*	-0.79	-1.51	*
Th	*	1.02	-13.77	3.92	-0.43	-1.99	-0.85	0.06	-4.82	*	-0.99	2.11	*
Tl	*	*	*	2.86	-0.07	*	*	-1.20	*	*	-1.39	2.36	*
Tm	*	-0.39	*	0.14	0.49	0.52	*	-0.05	0.36	*	-0.23	-2.52	*
U	*	-2.93	-14.66	1.27	-1.74	-0.50	0.56	0.33	2.65	*	-0.25	-1.01	*
V	*	0.04	-23.50	0.60	0.56	2.52	0.73	0.57	-2.09	-0.64	-1.20	0.31	*
W	*	*	1.73	*	*	-0.74	*	*	3.75	*	0.09	*	*
Y	*	0.47	-11.19	1.87	0.00	0.47	0.00	-0.47	1.84	0.00	-0.58	*	-1.87
Yb	*	-1.16	*	-0.08	1.54	0.99	*	0.36	1.58	*	-0.08	-3.33	*
Zn	*	0.38	-10.39	-0.60	-0.30	1.06	0.04	0.53	2.47	-0.42	-0.44	0.60	-2.12
Zr	*	-2.49	-15.49	2.55	-1.12	-2.80	-0.19	1.05	3.26	2.70	-1.33	-11.60	-10.12

Bold entries are Data Quality 1 - Underlined entries are Data Quality 2 - *Entries in italics* are derived from Provisional Values.

Table 3 - GeoPT39 Z-scores for Syenite, SyMP-1. 10/06/2016

Lab Code	U19	U20	U21	U22	U23	U24	U25	U26	U27	U28	U30	U32	U33
SiO2	-0.29	-0.57	1.12	-0.18	-0.10	0.80	0.48	-0.01	0.73	*	0.74	-1.02	0.40
TiO2	0.03	0.03	-1.49	-0.29	-0.29	-2.99	-0.29	-1.59	0.03	-0.63	-0.29	-0.16	0.80
Al2O3	-1.22	-0.20	-0.02	0.46	-0.29	0.93	-2.51	-1.38	0.59	*	0.52	-0.92	0.09
Fe2O3T	-0.13	0.14	-1.91	0.11	0.15	3.12	1.69	-0.63	0.22	*	-0.55	0.64	1.37
MnO	*	0.13	-1.87	0.24	0.42	-1.98	1.12	-0.29	9.27	0.48	-1.17	0.42	0.59
MgO	0.88	-0.39	0.17	-0.38	-0.60	-5.27	4.96	-0.19	-0.57	*	0.08	-0.19	0.83
CaO	1.51	1.32	-2.27	0.19	-0.23	-2.08	5.30	-0.09	1.32	*	0.00	-0.76	-1.10
Na2O	1.28	3.17	2.69	0.95	-0.07	11.06	-2.20	-1.73	0.96	*	1.90	0.32	-0.02
K2O	-0.78	0.11	0.63	-0.05	0.50	-2.08	-1.86	-0.36	5.17	*	0.12	-0.77	2.17
P2O5	-0.70	-0.70	0.31	-0.48	*	-2.68	0.68	-0.88	-0.70	*	0.31	-0.35	-0.02
LOI	-1.92	-6.70	-1.20	-0.25	9.76	1.41	-5.85	2.85	-1.22	*	0.46	*	-3.11
Ag	*	*	*	*	*	22.76	*	*	*	*	*	*	*
Ba	-1.39	-2.02	4.76	-0.66	0.30	-2.65	0.48	-0.26	-12.33	-0.62	*	0.04	-0.13
Be	*	*	-2.42	*	*	-1.36	*	0.05	*	0.82	*	*	*
Bi	*	*	*	*	*	*	*	*	*	0.92	*	*	*
Ce	-1.47	-6.64	1.56	-1.74	*	-2.01	-2.82	0.03	*	1.61	*	0.00	*
Co	*	-3.62	*	-7.03	*	-2.67	*	-4.42	-4.56	-0.58	*	*	0.56
Cr	11.04	2.39	*	-0.99	*	3.35	-3.73	-2.88	-3.18	0.90	*	1.24	0.35
Cs	*	*	*	*	*	*	*	-0.43	*	-0.20	*	*	*
Cu	0.67	0.67	*	0.67	*	0.84	6.00	0.67	1.11	0.44	*	-0.44	0.22
Dy	*	*	0.43	*	*	-2.51	*	0.03	*	0.82	*	*	*
Er	*	*	1.38	*	*	-1.10	*	-0.57	*	1.79	*	*	*
Eu	*	*	1.27	*	*	-1.38	*	-0.31	*	0.28	*	*	*
Ga	*	-1.23	2.17	-1.54	*	*	*	*	*	1.56	*	*	*
Gd	*	*	2.90	*	*	-2.66	*	0.82	*	-0.59	*	*	*
Hf	*	*	-2.50	-1.17	*	*	*	0.53	*	1.06	*	*	*
Ho	*	*	-0.12	*	*	-1.23	*	-0.50	*	1.15	*	*	*
In	*	*	*	*	*	*	*	*	*	*	*	*	*
La	-1.03	4.88	0.13	1.54	*	-4.83	*	-0.39	*	0.77	*	0.19	*
Li	*	*	*	*	*	*	*	*	*	0.76	*	*	*
Lu	*	*	0.85	*	*	-1.35	*	-0.29	*	0.43	*	*	*
Mo	*	*	*	-2.68	*	2.12	*	0.52	*	-1.36	*	*	0.17
Nb	-3.48	0.38	-4.44	-7.15	*	*	-1.36	-0.16	*	3.16	*	*	0.96
Nd	*	-7.91	-0.01	-1.10	*	-3.82	4.48	0.36	*	1.73	*	*	*
Ni	-4.01	0.49	-2.83	-0.56	*	0.18	-0.43	-1.42	-8.63	0.49	*	-0.00	-4.93
Pb	-0.52	0.06	-0.55	-0.20	*	2.19	0.09	0.84	-0.87	2.83	*	*	0.49
Pr	*	*	-0.41	-2.87	*	-4.17	*	-0.50	*	1.49	*	*	*
Rb	2.33	-0.61	-1.36	-0.38	2.89	*	0.08	24.69	*	0.06	*	*	0.86
Sb	*	*	*	398.46	*	*	*	*	*	*	*	*	*
Sc	*	*	-4.66	-7.06	*	0.78	*	-4.12	*	-0.42	*	*	*
Sm	*	*	0.98	-4.72	*	-2.91	*	-0.04	*	0.78	*	*	*
Sn	*	*	1.64	*	*	*	*	*	*	0.52	*	*	*
Sr	-0.66	1.75	-2.39	0.09	2.78	-2.63	-0.05	0.48	*	1.05	*	*	-0.09
Ta	*	*	12.09	30.77	*	*	*	*	*	0.65	*	*	*
Tb	*	*	1.52	*	*	4.90	*	-0.39	*	-0.34	*	*	*
Th	*	0.59	0.09	-5.32	*	*	*	-0.75	*	4.33	*	*	-1.27
Tl	*	*	*	*	*	*	*	0.90	-6.56	6.07	*	*	*
Tm	*	*	0.75	*	*	0.14	*	-0.61	*	0.59	*	*	*
U	*	10.91	0.04	-0.83	*	*	*	-0.21	-4.46	1.97	*	*	*
V	2.99	-1.96	-1.58	-0.21	*	-0.12	*	-2.78	0.60	0.09	*	0.13	2.69
W	*	*	*	*	*	*	*	-1.99	*	*	*	*	*
Y	-0.47	-2.33	3.96	3.96	*	-1.82	*	-0.56	*	2.29	*	0.00	1.17
Yb	*	*	0.86	*	*	-0.68	*	0.34	*	1.23	*	*	*
Zn	9.19	-1.06	0.61	0.15	*	4.86	0.50	-1.33	0.54	-1.06	*	0.38	0.27
Zr	-1.10	4.00	-3.37	-0.93	1.56	-6.66	0.00	-0.34	*	5.59	*	0.10	0.72

Bold entries are Data Quality 1 - Underlined entries are Data Quality 2 - *Entries in italics* are derived from Provisional Values.

Table 3 - GeoPT39 Z-scores for Syenite, SyMP-1. 10/06/2016

Lab Code	U34	U35	U36	U37	U38	U39	U40	U41	U43	U44	U45	U47	U48
SiO2	*	-0.05	*	-0.31	-0.42	0.23	1.42	0.56	-0.72	-1.21	1.87	-0.14	-0.58
TiO2	0.58	0.09	*	0.02	0.64	0.03	-3.59	0.62	0.03	-2.10	-2.70	0.29	-0.57
Al2O3	*	0.31	*	-0.30	-0.77	0.76	-0.37	0.21	1.38	0.21	-0.67	-0.10	-0.64
Fe2O3T	*	0.40	1.54	-0.20	0.84	0.14	-3.46	0.38	1.01	-1.47	-7.22	0.02	-0.89
MnO	*	0.13	1.54	-0.11	1.19	-0.22	-2.33	-0.11	-3.74	-0.11	-3.63	-0.46	-0.22
MgO	*	0.52	4.49	0.35	-0.30	0.15	-1.11	0.80	-1.29	2.52	1.98	-0.03	0.03
CaO	*	0.57	3.40	-0.09	0.76	0.00	-3.03	0.57	-1.89	-3.31	-1.13	-0.05	0.81
Na2O	*	0.65	*	0.48	0.02	-2.19	-1.56	0.32	-0.30	-0.31	-3.94	0.59	-0.30
K2O	*	0.04	*	-0.01	0.86	-0.03	2.02	0.40	-0.17	-0.39	-1.35	0.53	-0.23
P2O5	*	0.16	*	-0.68	1.28	0.16	-0.50	0.64	0.62	0.31	-1.01	-0.18	-1.36
LOI	*	-9.32	*	-0.13	2.60	-7.89	0.45	-1.80	4.03	-4.07	-24.69	-0.04	0.33
Ag	*	*	*	*	*	*	*	-1.51	*	*	*	*	*
Ba	-0.61	4.06	0.92	*	-1.58	-2.49	5.21	-2.65	*	-3.09	0.48	-0.17	-4.36
Be	*	*	*	*	-1.10	3.73	*	-0.27	*	-0.86	-0.69	*	*
Bi	*	*	*	*	-0.15	*	*	0.61	*	16.88	*	*	*
Ce	0.87	-2.14	2.22	*	0.44	2.55	*	-1.27	*	*	11.70	*	-4.04
Co	0.94	-2.67	-1.05	*	-0.18	2.08	*	-0.62	*	-0.38	13.85	*	-2.96
Cr	3.98	-1.49	8.31	*	5.76	9.65	*	-0.30	*	-0.30	-7.91	1.19	-1.93
Cs	-0.04	*	0.47	*	-1.16	-1.35	*	0.15	*	*	*	*	*
Cu	1.78	*	-1.60	*	-1.50	-2.89	*	0.78	*	0.22	-3.33	*	-2.55
Dy	-0.99	*	-0.49	*	0.22	-0.38	*	0.94	*	*	0.53	*	-1.50
Er	-0.95	*	-1.06	*	-0.56	1.42	*	1.42	*	*	-0.32	*	-1.41
Eu	-0.83	*	-0.91	*	-0.00	0.02	*	0.72	*	*	0.34	*	-1.77
Ga	*	-2.16	4.65	*	2.23	-1.23	*	0.08	*	*	1.24	*	-0.30
Gd	-1.05	*	3.15	*	-0.72	-1.46	*	1.35	*	*	0.39	*	-1.66
Hf	-7.25	*	-0.16	*	-1.19	-6.23	*	0.70	*	*	-0.19	*	-2.09
Ho	-0.16	*	0.19	*	0.36	-0.49	*	1.49	*	*	-0.08	*	-1.25
In	*	*	*	*	-0.91	*	*	*	*	*	*	*	*
La	0.00	-4.37	1.99	*	-1.02	1.28	*	0.32	*	*	0.40	*	-3.39
Li	2.85	*	*	*	0.00	-0.83	*	-0.87	*	-0.70	*	*	-2.32
Lu	-0.18	*	0.43	*	0.08	0.38	*	1.36	*	*	0.60	*	-0.99
Mo	5.99	*	*	*	1.84	*	*	0.90	*	1.44	1.06	*	*
Nb	2.15	0.38	1.87	*	-1.14	-4.26	*	0.19	*	*	-2.90	*	-1.97
Nd	1.22	-0.68	1.40	*	-0.04	-1.70	*	0.55	*	*	0.49	*	-2.81
Ni	2.46	-8.26	-0.69	*	0.51	-1.48	*	-1.85	*	-2.28	-4.38	*	-11.46
Pb	2.48	0.98	0.21	*	-0.38	4.79	*	0.61	*	-1.41	-3.72	*	6.98
Pr	-0.15	*	1.25	*	-0.04	-1.76	*	1.37	*	*	0.59	*	-2.88
Rb	1.14	2.02	0.42	*	-1.02	-0.45	*	2.69	*	*	-2.11	*	-0.50
Sb	0.32	*	*	*	-0.28	*	*	*	*	*	*	*	*
Sc	0.66	0.30	-0.22	*	0.58	-4.51	*	-0.21	*	*	2.55	*	3.87
Sm	-0.35	*	1.00	*	0.39	-1.14	*	0.79	*	*	0.30	*	-1.64
Sn	23.80	*	*	*	3.62	*	*	1.16	*	*	-2.57	*	*
Sr	1.70	1.05	-0.16	*	0.90	-1.62	4.46	-2.41	*	1.40	-2.26	-0.83	-1.71
Ta	4.76	*	0.15	*	1.17	-5.23	*	0.28	*	*	-0.42	*	-2.07
Tb	-1.18	*	2.06	*	-1.14	-0.78	*	1.40	*	*	0.71	*	-2.55
Th	1.21	-1.91	1.57	*	0.36	*	*	1.44	*	*	-11.25	*	-1.89
Tl	5.39	*	*	*	*	-0.28	*	0.12	*	*	*	*	*
Tm	*	*	0.11	*	-0.83	-0.43	*	1.21	*	*	0.30	*	-1.19
U	0.85	5.32	-0.72	*	0.58	1.55	*	-0.34	*	*	0.47	*	-1.15
V	-0.08	4.36	-1.07	*	-1.66	7.44	*	-0.04	*	-1.49	-1.67	-0.73	-2.29
W	*	*	*	*	1.52	*	*	-2.28	*	*	-0.28	*	*
Y	4.24	0.93	1.24	*	0.48	0.47	*	0.56	*	-3.96	-1.17	*	-1.31
Yb	-0.53	*	0.33	*	-0.15	0.02	*	1.52	*	*	0.39	*	-1.75
Zn	0.76	1.22	-3.95	*	2.73	-0.83	*	0.50	*	-3.60	1.41	1.63	-0.49
Zr	-10.81	0.88	1.63	*	1.10	1.90	*	0.70	*	*	-2.42	1.43	-1.99

Bold entries are Data Quality 1 - Underlined entries are Data Quality 2 - *Entries in italics* are derived from Provisional Values.

Table 3 - GeoPT39 Z-scores for Syenite, SyMP-1. 10/06/2016

Lab Code	U49	U50	U51	U52	U53	U54	U55	U56	U57	U58	U59	U60	U61
SiO2	0.46	**0.10**	**-0.87**	-0.01	**-0.26**	-0.28	**-0.82**	**0.94**	0.41	*	*	-0.53	*
TiO2	1.23	**0.64**	**0.64**	0.11	**-9.64**	-1.42	**-2.81**	**-0.57**	1.20	*	*	-0.59	*
Al2O3	-0.97	**-0.26**	**0.36**	0.25	**1.04**	-0.17	**-1.96**	**-0.20**	0.58	*	*	-0.72	*
Fe2O3T	1.14	**0.93**	**-0.04**	0.08	**1.05**	-0.06	**-0.66**	**-0.22**	-2.70	*	*	-0.15	*
MnO	2.53	**-3.74**	**-0.22**	-0.60	**1.54**	0.12	**-0.93**	**-0.22**	-2.10	*	*	-0.11	*
MgO	0.66	**-1.65**	**-0.39**	-0.95	**-1.47**	-0.23	**-0.10**	**1.06**	-0.54	*	*	-0.47	*
CaO	1.99	**0.38**	**-1.89**	0.43	**2.65**	0.18	**-3.76**	**1.13**	-1.80	*	*	0.19	*
Na2O	0.40	**0.96**	**1.59**	1.52	**-0.30**	0.01	**-1.91**	**-1.25**	-1.57	*	*	-0.78	*
K2O	1.73	**0.86**	**-0.71**	0.22	**0.18**	-0.18	**-0.37**	**0.11**	-0.29	*	*	-0.15	*
P2O5	1.80	**19.12**	**-1.36**	0.74	**-0.57**	0.42	**-1.03**	**-1.36**	-0.89	*	*	-1.01	*
LOI	*-1.56*	*0.82*	***0.45***	*-2.28*	***3.79***	*-4.73*	***1.41***	***2.84***	*10.12*	*1.78*	*	*-1.68*	*
Ag	*57.18*	*	*	*	*	*	*	*	*-0.04*	*	*	*	*
Ba	1.21	*	**2.30**	-0.44	3.55	0.32	**-6.54**	**0.24**	-1.72	-7.14	1.57	1.00	**2.50**
Be	*	*	*	*	*	0.08	*	*	1.21	-2.23	*	*	**-1.54**
Bi	0.08	*	*	*	*	-0.15	*	*	-0.77	*	*	*	*
Ce	0.67	*	**-2.82**	-1.58	*	-0.74	**-6.30**	*	-2.36	-3.98	-0.50	-2.18	**-0.40**
Co	*-0.05*	*	***-2.67***	*	*	*0.05*	***-8.36***	***-4.56***	*-1.67*	*-2.94*	*-1.43*	*	*
Cr	*-1.08*	*	***-4.87***	*-3.44*	*	*1.01*	***-0.50***	***1.39***	*-1.01*	*-2.12*	*	*0.65*	*
Cs	16.71	*	**5.05**	*	*	-0.01	*	*	-0.79	*	0.80	*	**-0.22**
Cu	-0.49	*	**-2.00**	3.74	*	0.66	**-0.44**	**4.22**	-1.51	1.08	-0.02	0.00	**-3.31**
Dy	*	*	*	*	*	-0.19	*	*	-1.61	0.37	*	*	**0.07**
Er	*	*	*	*	*	-0.37	*	*	-1.39	0.88	*	*	**-0.46**
Eu	*	*	*	*	*	-0.52	*	*	-1.15	4.70	*	*	**0.66**
Ga	*-0.66*	*	***-3.09***	*	*	*0.01*	***-3.09***	***-4.02***	*3.30*	*0.00*	*-1.59*	*-0.15*	*
Gd	*	*	*	*	*	-0.72	**-7.48**	*	0.00	4.43	*	*	**-0.97**
Hf	0.57	*	**-2.33**	*	*	-0.19	**-4.03**	**-5.72**	-2.82	2.83	*	*	**-0.64**
Ho	*	*	*	*	*	-0.30	*	*	-0.98	0.53	*	*	**-0.53**
In	*	*	*	*	*	*-0.31*	*	*	*1.27*	*	*	*	*
La	-0.14	*	**1.80**	-1.72	*	-0.87	**-3.47**	*	-1.59	-0.47	1.98	1.16	**-0.26**
Li	*	*	*	*	*	-0.19	*	*	-2.01	*	*	*	**-1.32**
Lu	*	*	*	*	*	-0.15	*	*	-0.63	-1.20	*	*	**0.30**
Mo	*-2.17*	*	***-5.99***	*	*	*1.39*	***1.62***	*	*-0.72*	*-2.16*	*-1.45*	*	*
Nb	-0.62	*	**-0.39**	-0.74	*	0.53	**-8.12**	**-5.03**	-0.28	13.34	0.33	-0.20	**-5.11**
Nd	-0.96	*	**-3.60**	-6.16	*	-0.31	**-2.59**	*	-0.62	-0.59	*	*	**0.12**
Ni	*-4.66*	*	***-10.35***	*-4.53*	*	*-0.00*	***0.12***	***-1.97***	*-0.82*	*-3.53*	*	*-4.01*	*
Pb	-0.96	*	**-0.40**	-0.76	*	0.29	**-5.02**	**-4.21**	-0.32	-3.33	0.80	0.49	**1.17**
Pr	*	*	*	-4.31	*	-0.31	*	*	-1.15	1.13	*	*	**-0.63**
Rb	-0.35	*	**0.73**	0.67	*	0.33	**0.94**	**-0.45**	-2.33	-4.28	0.22	0.75	**-0.56**
Sb	*80.83*	*	***393.58***	*	*	*0.54*	*	*	*-1.71*	*	*	*	*
Sc	-0.81	*	**5.11**	11.57	*	0.15	**-0.90**	**-0.90**	1.71	*	0.75	1.35	**7.15**
Sm	-0.47	*	**-8.37**	*	*	-0.28	*	*	-2.22	1.13	*	*	**-0.78**
Sn	3.20	*	**28.15**	*	*	1.14	*	*	-1.62	-3.48	*	*	*
Sr	-0.55	*	**-0.00**	0.06	**2.23**	-0.00	**-4.73**	**0.43**	-1.17	-15.21	-0.31	0.24	**0.74**
Ta	*	*	*	*	*	-0.09	*	*	-0.41	*	*	*	**-3.92**
Tb	*	*	*	*	*	-0.96	*	*	-0.99	0.97	*	*	**0.39**
Th	*-0.95*	*	***-0.04***	*0.24*	*	*	***1.00***	***-1.49***	*-1.02*	*1.13*	*-0.18*	*0.50*	***4.54***
Tl	*	*	*	*	*	*0.18*	*	*	*-0.25*	*	*	*	*
Tm	*	*	*	*	*	-0.26	*	*	-0.39	0.00	*	*	**-0.55**
U	0.63	*	**1.69**	1.19	*	0.32	**-7.26**	**5.32**	-0.69	1.94	-3.42	-0.83	**-0.13**
V	-0.83	*	**2.99**	*	*	0.08	**3.85**	**1.80**	-1.73	-2.40	0.20	0.47	*
W	*-0.66*	*	***64.66***	*	*	*-0.33*	*	*	*-1.70*	*	*	*	*
Y	-0.79	*	**0.00**	0.49	*	-0.21	**4.66**	**-0.93**	-0.64	-1.19	-0.81	0.47	**-0.14**
Yb	*	*	*	*	*	-0.35	*	*	-1.34	0.39	*	*	**-0.68**
Zn	-0.15	*	**-0.38**	0.78	*	0.38	**-1.06**	**-1.74**	-2.02	-3.34	0.73	0.04	*
Zr	*-0.58*	*	***2.21***	*0.34*	*	*1.55*	***-3.43***	***3.16***	*-1.15*	*	*0.31*	*-0.48*	***5.40***

Bold entries are Data Quality 1 - Underlined entries are Data Quality 2 - *Entries in italics* are derived from Provisional Values.

Table 3 - GeoPT39 Z-scores for Syenite, SyMP-1. 10/06/2016

Lab Code	U62	U63	U64	U65	U67	U69	U72	U74	U75	U76	U77	U78	U79
SiO2	0.01	-1.30	0.01	1.06	*	-0.56	-0.92	3.20	-0.90	-0.01	-0.66	-0.20	-0.22
TiO2	0.29	-0.57	0.32	-6.62	*	0.50	1.64	-10.25	9.71	-0.29	-5.65	-0.59	*
Al2O3	-0.07	-1.39	-0.13	-6.38	0.04	-2.51	3.82	2.12	-1.96	-0.53	-1.73	-0.36	*
Fe2O3T	-0.15	-0.30	0.07	-2.32	0.51	-0.50	1.96	-3.29	-1.18	-0.68	1.58	-0.24	*
MnO	-0.29	-0.22	-0.11	-0.22	0.94	-0.74	0.48	-3.74	-0.22	-0.11	1.54	*	*
MgO	-0.74	-0.75	0.17	35.77	0.89	3.87	2.05	-0.03	-0.93	-1.10	-2.25	0.80	*
CaO	0.19	-0.38	0.47	12.11	0.09	6.24	3.97	3.22	-0.76	0.00	-0.04	-0.09	*
Na2O	-0.47	-3.77	0.01	-6.61	-0.15	-2.99	2.73	-1.56	-0.62	2.06	-0.84	0.48	*
K2O	-0.32	-0.51	0.05	-4.75	1.35	-0.01	0.51	-1.74	-1.33	-0.01	-0.64	-0.19	*
P2O5	-0.32	-0.70	0.64	-2.02	*	3.48	2.82	-2.02	-1.36	0.08	0.23	-0.35	*
LOI	*	1.17	1.89	1.64	*	3.71	*	-8.61	0.23	-3.83	3.31	-0.97	0.11
Ag	*	3.89	*	-0.26	*	*	*	*	*	4.24	*	-0.13	*
Ba	*	0.02	1.06	7.97	0.00	0.04	-1.57	1.26	0.75	-1.82	6.67	3.21	*
Be	*	0.91	-1.22	-1.72	*	*	*	0.46	*	-0.77	3.55	0.09	*
Bi	*	*	-0.69	*	0.61	*	*	*	*	8.78	*	-0.08	*
Ce	*	1.14	0.00	-6.10	0.44	*	*	2.01	-1.62	0.70	1.21	1.07	*
Co	*	0.37	-0.19	-1.72	0.14	1.46	*	0.27	-6.37	0.09	3.03	0.85	*
Cr	*	4.28	0.15	2.59	*	-4.22	*	1.19	-2.77	0.00	6.79	0.15	*
Cs	*	*	0.39	-0.20	-0.35	*	*	1.11	*	-0.95	4.77	0.27	*
Cu	*	0.22	0.62	-2.44	-0.44	3.86	*	1.11	1.80	1.89	2.45	1.22	-0.78
Dy	*	0.67	0.59	-0.69	-0.34	*	*	1.43	*	0.03	1.02	1.09	*
Er	*	0.70	-0.00	-2.52	-0.79	*	*	2.06	*	0.09	0.25	0.92	*
Eu	*	0.35	0.17	-1.65	-0.34	*	*	4.38	*	0.88	-0.91	0.18	*
Ga	*	-0.10	-0.61	242.25	1.24	*	*	2.40	-4.48	1.71	1.13	0.83	*
Gd	*	2.24	-0.18	-0.97	0.01	*	*	6.53	*	1.81	0.45	0.74	*
Hf	*	-0.36	1.38	-14.03	*	*	*	5.56	-11.32	-6.90	-7.84	0.74	*
Ho	*	0.46	0.96	-0.77	-0.19	*	*	0.84	*	0.61	0.84	0.57	*
In	*	*	*	*	*	*	*	*	*	-0.46	*	0.34	*
La	*	0.90	0.45	-6.29	0.00	*	*	1.54	-1.80	1.99	1.36	1.99	*
Li	*	-3.34	0.35	*	-0.07	0.55	*	1.32	*	1.04	9.11	0.63	*
Lu	*	0.17	0.47	-2.12	-0.42	*	*	0.94	*	1.87	-0.84	0.34	*
Mo	*	0.98	1.44	1.11	0.49	*	*	-2.57	-3.52	-0.71	11.66	1.09	*
Nb	*	-0.08	0.96	-4.10	-4.06	*	*	5.17	0.38	-0.16	3.92	1.12	*
Nd	*	1.73	0.36	-4.74	0.04	*	*	4.90	-2.43	*	0.61	1.24	*
Ni	*	-0.00	-0.06	-3.57	0.12	0.20	*	1.23	-9.40	-1.91	5.41	1.11	*
Pb	*	0.09	0.27	-9.29	1.64	3.32	*	3.63	-1.47	-3.14	-4.79	1.36	*
Pr	*	1.09	0.81	-3.93	0.14	*	*	3.22	*	0.08	1.05	0.47	*
Rb	*	-0.51	0.01	-1.64	-2.13	*	*	1.61	-0.33	-0.41	2.75	1.50	*
Sb	*	0.82	0.16	6.87	-0.09	*	*	*	*	21.33	*	*	*
Sc	*	0.93	-0.45	1.62	*	*	*	0.66	2.82	-0.03	2.25	-0.15	*
Sm	*	1.05	0.41	-1.16	0.12	*	*	4.28	-5.84	0.04	0.61	0.82	*
Sn	*	-0.06	0.23	-0.92	-0.56	*	*	*	6.99	-2.54	*	-0.26	*
Sr	*	-0.66	0.19	1.49	0.06	1.31	1.58	1.05	-1.56	2.01	3.22	1.55	*
Ta	*	-0.98	-0.51	-13.07	*	*	*	4.20	13.91	-2.47	1.68	*	*
Tb	*	0.00	0.07	-2.01	-0.51	*	*	2.79	*	1.15	-0.39	0.22	*
Th	*	6.41	1.33	-1.91	*	*	*	4.75	-1.08	1.54	-0.45	0.92	*
Tl	*	1.92	0.79	-4.42	1.22	*	*	*	*	-1.78	*	0.68	*
Tm	*	0.59	0.18	-1.46	-0.73	*	*	0.82	*	1.21	*	0.07	*
U	*	3.08	0.84	-0.55	-0.14	*	*	3.36	-0.83	-0.69	0.67	1.26	*
V	*	0.73	-0.38	2.82	-0.64	-8.48	*	0.09	2.96	0.56	3.44	0.73	*
W	*	0.87	1.82	*	-3.52	*	*	*	-5.90	-3.71	*	*	*
Y	*	-1.00	0.54	27.52	*	*	*	1.91	1.45	0.33	6.10	0.72	*
Yb	*	0.63	0.56	-3.68	-0.34	*	*	0.98	*	0.91	0.28	0.81	*
Zn	*	-0.83	-1.18	-2.20	-0.07	-2.03	*	-1.51	-3.29	3.23	2.20	0.50	-6.45
Zr	*	-1.22	3.16	-4.99	*	-1.28	2.30	5.59	-0.44	-13.15	-11.46	2.82	*

Bold entries are Data Quality 1 - Underlined entries are Data Quality 2 - *Entries in italics* are derived from Provisional Values.

Table 3 - GeoPT39 Z-scores for Syenite, SyMP-1. 10/06/2016

Lab Code	U82	U83	U84	U85	U86	U87	U88	U92	U93	U94	U95	U96	U97
SiO2	0.12	-0.00	0.44	*	-0.28	-0.06	0.44	*	-0.32	0.01	2.38	0.32	-0.36
TiO2	-2.10	-0.81	-1.49	*	0.32	0.32	-0.29	-1.94	-0.57	0.35	-2.99	0.32	-3.61
Al2O3	-0.27	0.25	0.12	*	-0.05	-0.53	1.31	-1.21	-0.50	0.07	-1.73	-0.67	-0.07
Fe2O3T	-0.90	-0.15	-1.95	*	0.16	-0.24	-1.29	2.21	6.72	0.55	0.57	1.21	-2.48
MnO	-1.87	0.83	-1.87	*	*	-0.11	-2.40	1.15	3.30	0.94	-0.22	-0.46	-1.87
MgO	0.17	0.77	-0.47	*	0.26	-0.56	0.35	3.97	1.06	0.44	-0.39	-0.38	-0.65
CaO	-0.95	0.36	-1.61	*	0.00	0.19	1.04	-1.17	-0.74	0.79	-3.59	4.35	-1.04
Na2O	1.43	-0.02	-1.41	*	-1.10	-0.15	0.17	0.96	-0.77	-1.10	-6.61	-0.94	-1.73
K2O	-1.04	0.01	-0.01	*	-0.90	0.94	-1.52	-1.13	0.42	-1.38	6.47	-2.03	-0.39
P2O5	-0.35	1.48	0.74	*	0.31	-0.02	2.29	*	9.87	0.01	1.28	0.31	-0.68
LOI	0.35	0.55	0.35	*	-0.25	-0.85	1.66	*	0.31	-1.32	-12.42	-4.66	-1.44
Ag	*	*	*	*	*	*	*	*	*	144.64	*	*	*
Ba	-0.10	-0.30	*	-7.69	*	1.00	-0.83	-0.78	*	0.72	2.44	7.30	-2.08
Be	0.77	1.21	*	*	*	*	0.23	*	*	*	*	0.96	*
Bi	*	-2.19	*	*	*	*	*	*	*	*	*	*	*
Ce	0.03	-2.55	*	2.65	*	*	-1.04	1.94	*	-0.27	0.27	0.64	-2.55
Co	-0.10	-3.44	*	*	*	1.51	-0.24	0.65	*	-0.72	-2.67	0.14	-1.81
Cr	0.35	-2.57	*	*	*	-0.90	-0.70	3.28	*	1.29	1.09	0.70	*
Cs	-0.67	-1.52	*	0.72	*	*	*	0.46	*	-3.23	*	0.56	*
Cu	0.00	0.93	*	*	*	-1.00	-0.22	*	-2.00	1.78	-0.22	0.56	-7.11
Dy	0.49	-0.82	*	0.22	*	*	-0.81	2.63	*	*	-1.29	0.03	*
Er	0.39	-0.84	*	1.64	*	*	-0.19	*	*	*	0.29	-0.32	*
Eu	0.05	-0.36	*	2.55	*	*	-0.80	-0.15	*	*	-0.48	-0.17	*
Ga	1.99	-2.21	*	2.87	*	1.24	*	*	8.06	0.08	-0.30	-0.71	-2.94
Gd	0.97	-0.95	*	2.07	*	*	-0.37	*	*	*	-1.36	1.12	*
Hf	0.19	0.40	*	1.48	*	*	-0.21	0.89	*	0.45	*	-0.49	*
Ho	0.19	-0.10	*	0.92	*	*	-0.46	*	*	*	0.92	-0.19	*
In	*	*	*	*	*	*	*	*	*	*	*	*	*
La	-0.19	-3.15	*	1.29	*	*	-1.03	0.51	*	-0.06	1.28	0.06	-6.04
Li	1.18	-2.48	*	*	*	*	-0.10	*	*	*	-1.39	0.70	*
Lu	0.21	0.56	*	0.94	*	*	-0.51	-3.90	*	*	-0.84	0.09	*
Mo	*	-0.44	*	*	*	*	0.21	*	0.98	0.27	-0.29	1.13	*
Nb	1.50	-0.76	*	0.51	*	*	0.77	*	0.38	0.77	132.45	-4.83	1.35
Nd	0.67	-1.42	*	1.62	*	*	-0.91	-0.18	*	1.24	-1.44	0.55	*
Ni	-0.06	*	*	*	*	-1.11	0.12	*	-9.98	0.31	-0.62	*	-1.79
Pb	1.18	-9.29	*	*	*	-0.14	-0.61	*	3.87	0.78	*	-0.49	-1.76
Pr	0.18	-1.30	*	1.38	*	*	-0.86	*	*	*	-2.92	0.14	*
Rb	-0.23	1.94	*	0.44	*	*	-0.51	0.22	1.09	-1.13	-3.75	0.47	0.06
Sb	*	-1.20	*	*	*	*	*	*	*	15.28	*	*	*
Sc	0.57	0.31	*	-12.92	*	-1.05	-0.44	-0.35	*	*	-3.31	0.33	*
Sm	0.15	-0.66	*	1.68	*	*	-0.72	0.62	*	1.36	2.93	0.52	*
Sn	*	-2.50	*	-0.25	*	*	*	*	*	-1.75	*	0.13	*
Sr	0.35	0.59	*	3.91	*	-0.70	0.50	3.15	-0.44	-0.07	-2.32	1.03	-0.75
Ta	0.37	0.99	*	2.61	*	*	-0.98	0.00	*	*	*	*	*
Tb	0.00	-1.19	*	3.28	*	*	-0.69	-1.13	*	*	-0.25	0.25	*
Th	0.29	-0.54	*	2.97	*	*	-0.85	2.56	3.50	1.54	-2.32	1.13	*
Tl	*	-1.46	*	*	*	*	*	*	*	*	*	-0.15	*
Tm	0.18	-0.04	*	0.59	*	*	-0.57	*	*	*	0.14	-0.39	*
U	0.42	0.25	*	2.50	*	*	-0.76	0.15	1.13	2.66	-3.06	0.70	*
V	-0.04	-1.43	*	*	*	-0.55	0.04	1.11	*	0.39	-1.28	1.16	-2.95
W	*	-2.20	*	-2.62	*	*	*	5.16	22.71	*	*	2.20	*
Y	0.77	1.04	*	-0.13	*	*	-0.30	*	14.93	1.05	-2.80	-0.35	7.23
Yb	0.29	-0.02	*	0.68	*	*	-0.61	0.33	*	*	-0.18	-0.44	*
Zn	-0.76	1.32	*	*	*	-1.33	0.15	-0.83	0.08	-0.07	0.08	-1.90	0.50
Zr	1.26	-0.91	*	4.69	*	1.88	1.60	3.16	-0.49	2.07	-2.59	-1.08	-3.96

Bold entries are Data Quality 1 - Underlined entries are Data Quality 2 - *Entries in italics* are derived from Provisional Values.

Table 3 - GeoPT39 Z-scores for Syenite, SyMP-1. 10/06/2016

Lab Code	U98	U99	U100	U101	U102	U103	U105	U106	U108	U109	U110	U111	U112
SiO2	-4.71	**0.05**	-21.77	-0.03	1.77	-0.64	0.07	*	-1.50	0.07	**0.23**	2.88	**1.31**
TiO2	-3.79	**0.03**	109.47	0.59	-0.89	-0.59	0.02	0.62	-12.98	-0.29	**-0.21**	0.02	**1.00**
Al2O3	2.33	**0.14**	11.51	0.83	-0.72	5.39	-0.13	1.74	25.24	5.42	**0.53**	-0.19	**1.72**
Fe2O3T	-1.82	**-0.30**	-23.93	1.03	-3.71	-0.68	0.42	3.62	-21.39	0.20	**0.31**	0.68	**-0.48**
MnO	170.46	**0.48**	56.16	0.24	1.65	-0.11	1.65	1.65	8.68	-0.11	**0.83**	-1.87	-0.20
MgO	26.56	**1.06**	-17.91	0.75	1.79	-0.65	-0.10	3.15	-27.13	2.25	**-0.57**	-0.56	0.89
CaO	-0.85	**-0.19**	-1.61	0.61	-0.09	-1.32	0.38	2.08	-6.43	-2.46	**0.76**	-0.57	0.63
Na2O	*	**1.28**	*	0.62	0.95	-4.57	0.48	2.06	80.14	-4.72	**0.33**	3.48	**3.80**
K2O	-4.36	**2.30**	34.17	0.39	0.52	0.43	-0.22	3.40	-5.62	*	**0.24**	-0.32	**-1.19**
P2O5	6.03	**-0.04**	10.22	0.91	0.97	-0.68	0.41	*	-21.82	*	**0.36**	0.64	**-0.90**
LOI	*	**_-10.52_**	*	_-1.75_	_-4.42_	_0.11_	_-4.19_	*	_8.69_	_-4.78_	**_-7.42_**	*	_-9.91_
Ag	*	*	_153.62_	*	*	*	_0.10_	*	*	*	*	*	_-0.13_
Ba	2.52	**-8.38**	-20.96	1.46	-1.17	3.57	0.63	0.23	-21.19	*	**-0.31**	*	-0.27
Be	*	*	*	*	-1.49	-5.30	-0.41	*	-6.45	*	*	*	1.20
Bi	*	*	*	*	0.00	*	-0.23	*	*	*	*	*	*
Ce	1.27	**-9.85**	*	*	0.41	*	0.57	-3.12	-5.95	*	**1.23**	*	6.24
Co	_247.69_	**_-13.86_**	*	*	_-4.18_	*	_0.33_	_-0.95_	_-8.88_	*	*	*	_-1.33_
Cr	_10.00_	**_-8.35_**	_2.74_	*	_-3.38_	_-1.50_	_1.39_	_0.00_	_-12.46_	*	**_1.99_**	*	_1.22_
Cs	*	*	36.25	*	0.09	*	0.15	-0.94	0.57	*	**-0.05**	*	-0.76
Cu	2.78	**1.09**	0.56	*	-2.22	-3.00	0.33	-0.89	-12.08	*	**0.89**	*	-1.67
Dy	*	*	*	*	-0.25	-0.87	0.11	-1.40	-6.00	*	**1.62**	*	1.52
Er	*	*	*	*	1.53	-0.47	-0.04	-1.60	-3.80	*	**0.25**	*	1.50
Eu	*	*	*	*	1.46	-0.34	0.05	-1.49	-6.26	*	**0.92**	*	1.03
Ga	_1.66_	**_-0.95_**	*	*	_-1.08_	*	_0.78_	*	_-0.66_	*	**_-1.23_**	*	_1.49_
Gd	5.95	*	*	*	0.43	1.07	-0.26	-0.72	-7.00	*	**0.42**	*	1.47
Hf	*	*	*	*	1.10	*	0.11	*	-6.04	*	**0.42**	*	2.81
Ho	*	*	*	*	-0.27	-0.88	0.08	-1.23	-3.75	*	**1.45**	*	1.30
In	*	*	*	*	_0.75_	*	_-0.06_	*	*	*	*	*	*
La	-0.06	**-5.09**	*	*	1.32	-0.49	0.51	-1.67	-3.73	*	**0.96**	*	5.26
Li	*	*	*	*	*	-3.48	0.00	0.49	*	*	*	*	-0.70
Lu	*	*	*	*	-0.29	-0.80	-0.42	-1.69	-1.69	*	**0.17**	*	0.98
Mo	*	**_-4.41_**	*	*	_-0.44_	_-7.12_	_0.14_	*	_-9.43_	*	*	*	_3.23_
Nb	-2.24	**0.76**	-9.85	*	-0.97	2.51	1.15	*	6.10	*	**0.86**	*	2.79
Nd	4.54	*	*	*	0.93	-0.77	1.12	-1.10	-8.60	*	**0.89**	*	3.99
Ni	_-6.29_	**_-11.88_**	_1.42_	*	_-4.93_	_-0.37_	_-0.31_	_-1.66_	_-14.16_	*	**_1.11_**	*	_-3.08_
Pb	0.49	**-0.61**	-13.77	*	-0.49	-1.07	1.04	-2.86	-10.26	*	**1.76**	*	0.91
Pr	6.95	*	*	*	0.12	-0.23	0.49	-0.86	-6.10	*	**1.11**	*	3.12
Rb	0.57	**0.34**	1.04	*	-0.30	*	0.78	0.34	-11.84	-1.59	**0.34**	*	0.47
Sb	*	*	_759.95_	*	_-3.12_	*	_-0.60_	*	*	*	*	*	_-0.60_
Sc	*	**-4.03**	*	*	-0.45	-1.94	-0.21	*	-9.29	*	**-0.30**	*	-2.25
Sm	-4.91	*	*	*	0.05	-0.74	0.79	*	-7.55	*	**1.29**	*	3.22
Sn	*	*	2.92	*	-0.41	6.17	0.23	*	-7.91	*	*	*	0.87
Sr	0.13	**-0.51**	-16.87	*	0.41	-6.59	0.81	0.66	12.68	-1.27	**0.70**	*	-0.50
Ta	*	*	*	*	-4.34	*	-0.28	*	1.68	*	**0.00**	*	0.84
Tb	*	*	*	*	0.59	*	-0.27	-1.59	*	*	**0.39**	*	0.56
Th	_-1.89_	**_0.71_**	_-5.84_	*	_0.50_	_1.64_	_0.90_	_-1.89_	_-6.56_	*	**_1.95_**	*	_-4.49_
Tl	*	*	_12966.62_	*	_1.24_	*	_0.79_	*	_-5.20_	*	*	*	_-4.88_
Tm	*	*	*	*	-0.05	-1.18	0.07	-1.52	*	*	**0.36**	*	1.21
U	-1.46	**-1.39**	-7.81	*	-1.41	*	0.84	-2.38	-0.55	*	**0.93**	*	2.01
V	*	**-7.09**	139.77	*	2.86	-4.40	-0.90	-1.67	-10.88	*	**0.26**	*	0.30
W	*	*	_223.01_	*	_-3.63_	_49.49_	_1.82_	*	_2.01_	*	*	*	_-0.18_
Y	1.61	**0.00**	-4.20	*	-0.70	0.37	0.21	-0.91	-5.22	*	**1.21**	*	-1.40
Yb	*	*	*	*	-0.09	-1.16	0.41	-1.97	-2.09	*	**0.28**	*	1.29
Zn	0.95	**-0.79**	1.82	*	0.95	-7.47	-0.53	0.04	4.92	*	**-0.15**	*	0.61
Zr	_1.14_	**_-0.27_**	_-0.06_	_6.96_	_0.46_	*	_3.22_	*	_-6.58_	_-0.32_	**_3.16_**	*	_-1.58_

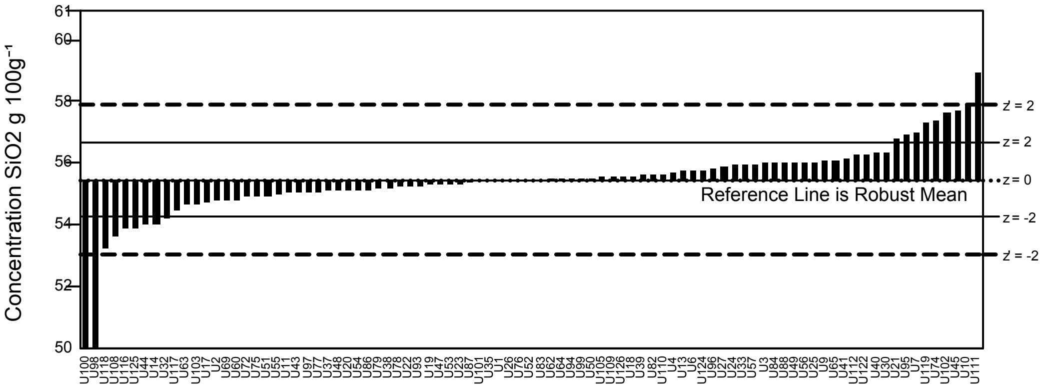
Bold entries are Data Quality 1 - Underlined entries are Data Quality 2 - _Entries in italics_ are derived from Provisional Values.

Table 3 - GeoPT39 Z-scores for Syenite, SyMP-1. 10/06/2016

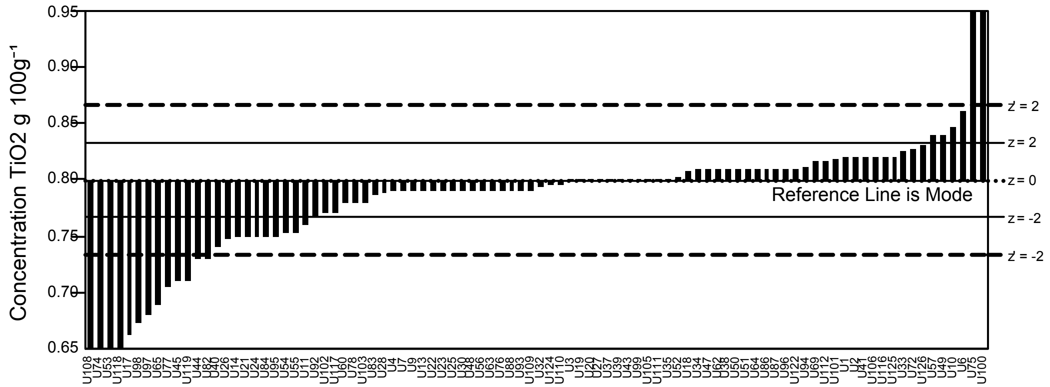
Lab Code	U116	U117	U118	U119	U120	U122	U123	U124	U125	U126
SiO2	-1.31	-0.83	-1.83	**3.05**	*	**1.32**	*	0.26	**-2.62**	0.07
TiO2	0.62	-0.89	-4.82	**-5.41**	*	**0.64**	*	-0.13	**1.24**	0.95
Al2O3	1.63	-0.64	-3.07	**3.87**	*	**0.36**	*	1.03	**-3.04**	0.04
Fe2O3T	3.89	-0.72	-0.77	**-16.45**	*	**-0.48**	*	-0.06	**-0.39**	0.11
MnO	5.16	-1.34	-1.87	**-4.79**	*	**3.30**	*	6.92	**-0.22**	0.07
MgO	22.86	-0.65	13.73	**-14.49**	*	**0.52**	*	-0.83	**-3.10**	-0.38
CaO	3.22	-0.85	-2.93	**-5.11**	*	**0.95**	*	-0.19	**-0.19**	-0.28
Na2O	-7.56	1.74	-6.14	**0.33**	*	**1.28**	*	-4.57	**1.28**	0.01
K2O	5.42	-0.01	-6.20	**0.11**	*	**1.00**	*	-1.62	**-0.03**	-0.01
P2O5	13.19	-0.68	-2.99	**-1.36**	*	**-0.04**	*	0.01	**-3.34**	-0.08
LOI	*-1.20*	*1.18*	*-4.42*	***1.41***	*	***1.98***	*	*0.11*	*	*-3.95*
Ag	*	*146.25*	*	*	*	***16.31***	*	*	*	*
Ba	*	2.95	*	**0.00**	*	**1.20**	*	*	**0.63**	-1.48
Be	*	*	*	**6.45**	*	**-0.61**	*	*	*	-0.45
Bi	*	4.66	*	**3.21**	*	**-1.22**	*	*	*	*
Ce	*	1.18	*	**-0.07**	0.54	**1.78**	**-7.43**	0.50	**-0.80**	-0.67
Co	*	*-2.28*	*	***0.18***	*	***0.22***	*	*-2.76*	***-0.77***	*-1.33*
Cr	*	*-1.38*	*	***4.38***	*	***2.99***	*	*1.29*	***-22.97***	*-1.99*
Cs	*	0.31	*	**-0.36**	0.23	**0.19**	*	0.06	**1.77**	-0.35
Cu	*	-0.79	*	**0.22**	*	**-0.82**	*	0.67	**-0.67**	0.44
Dy	*	*	*	**-1.14**	0.11	**0.72**	**-0.82**	-0.16	*	-4.57
Er	*	*	*	**-1.51**	-0.04	**0.03**	**-2.71**	*	*	-1.60
Eu	*	*	*	**-1.22**	-0.24	**0.26**	**-0.79**	*	*	-0.49
Ga	*	*-0.94*	*	***3.14***	*10.17*	***-0.19***	*	*-1.08*	***1.56***	*-1.68*
Gd	*	*	*	**-3.12**	-1.29	**0.09**	**0.41**	*	*	-1.71
Hf	*	-0.74	*	*	*	**2.28**	*	-5.24	*	-1.12
Ho	*	*	*	**-0.61**	0.46	**0.23**	**-1.46**	0.04	*	-0.84
In	*	*	*	*	*	*	*	*	*	*
La	*	0.91	*	**-0.39**	0.06	**1.49**	**-4.12**	0.26	**-9.51**	-0.71
Li	*	*	*	**0.07**	*	*	*	-0.54	*	*
Lu	*	*	*	**-0.33**	0.85	**0.68**	**-1.61**	*	*	-0.54
Mo	*	*-2.17*	*	***-1.68***	*	***2.21***	*	*	***-9.79***	*-2.46*
Nb	*	-0.31	*	**3.31**	0.50	**0.75**	*	-1.36	**1.15**	0.27
Nd	*	-1.08	*	**-0.81**	0.48	**4.39**	**-4.23**	2.96	**-3.60**	-1.29
Ni	*	*-4.34*	*	***2.46***	*	***1.61***	*	*-0.12*	***-10.97***	*-4.65*
Pb	*	0.03	*	**-3.29**	*	**1.81**	*	0.26	**0.17**	-0.66
Pr	*	*	*	**-0.15**	0.57	**0.49**	**-5.80**	1.68	*	-1.44
Rb	*	0.04	*	**1.51**	-0.59	**1.22**	*	-0.46	**0.27**	-0.43
Sb	*	*60.91*	*	***19.48***	*5.20*	***3.85***	*	*	*	*
Sc	*	0.33	*	**0.06**	4.72	**-14.26**	*	-0.32	**0.30**	-1.47
Sm	*	-2.17	*	**-0.78**	0.61	**0.36**	**-4.62**	-0.42	*	-0.09
Sn	*	-1.76	*	**2.19**	0.03	**0.84**	*	*	**-11.40**	-0.66
Sr	*	-0.20	*	**0.48**	*	**1.51**	*	-1.53	**-1.45**	-0.48
Ta	*	*	*	*	2.29	**-0.09**	*	*	*	-0.75
Tb	*	*	*	**-1.77**	1.45	**-0.78**	**2.30**	1.32	*	-1.10
Th	*	*-0.50*	*	***-2.32***	*-0.23*	***2.94***	*	*1.02*	***-0.24***	*-0.43*
Tl	*	*-1.14*	*	***-0.56***	*	*	*	*	*	*
Tm	*	*	*	**-0.77**	0.07	*	**-2.37**	*	*	-0.92
U	*	-1.95	*	**-1.39**	0.42	**1.57**	*	6.85	**-4.46**	-0.41
V	*	0.68	*	**-1.62**	*	**0.81**	*	2.01	**4.36**	1.67
W	*	*0.10*	*	***-0.18***	*0.10*	***1.24***	*	*	***-7.80***	*-0.95*
Y	*	-0.65	*	**2.24**	-0.12	**-0.01**	**1.68**	-4.20	**1.87**	-3.15
Yb	*	-4.35	*	**-0.58**	3.17	**0.53**	**-2.48**	-0.41	*	-1.39
Zn	*	-0.04	*	**0.76**	*	**-0.10**	*	0.04	**-2.65**	-0.30
Zr	*	*-0.73*	*	***1.22***	*	***5.48***	*	*1.37*	***-1.56***	*-0.80*

Bold entries are Data Quality 1 - Underlined entries are Data Quality 2 - *Entries in italics* are derived from Provisional Values.

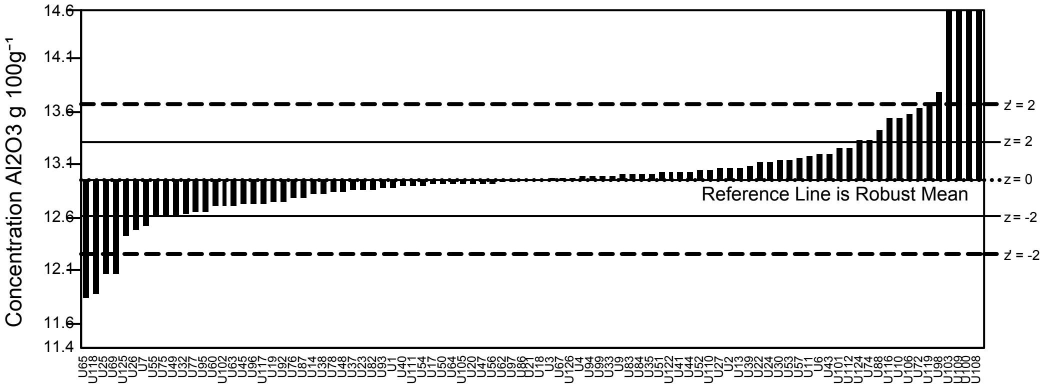
GeoPT39 - Barchart for SiO2



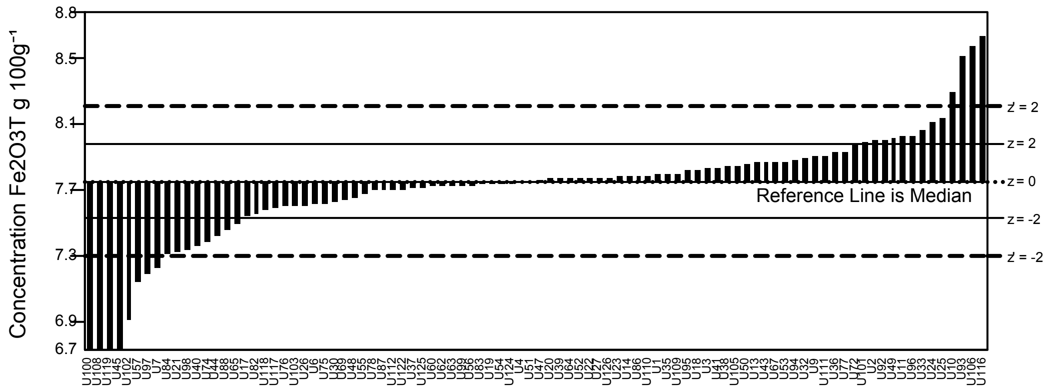
GeoPT39 - Barchart for TiO2



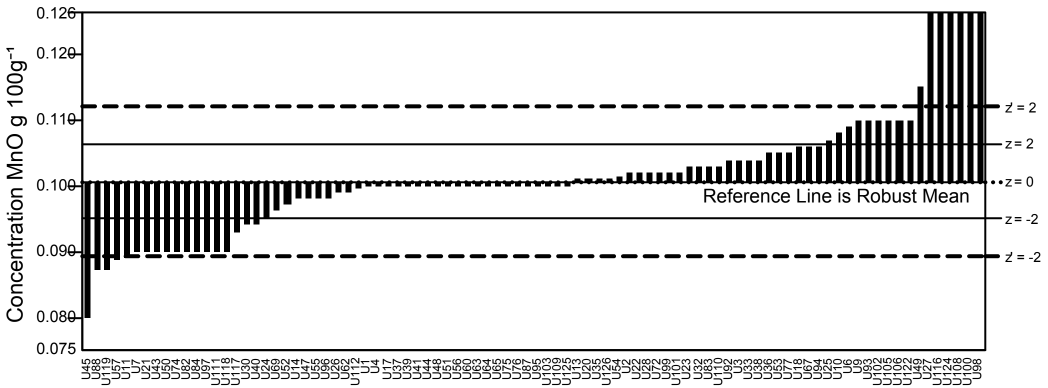
GeoPT39 - Barchart for Al2O3



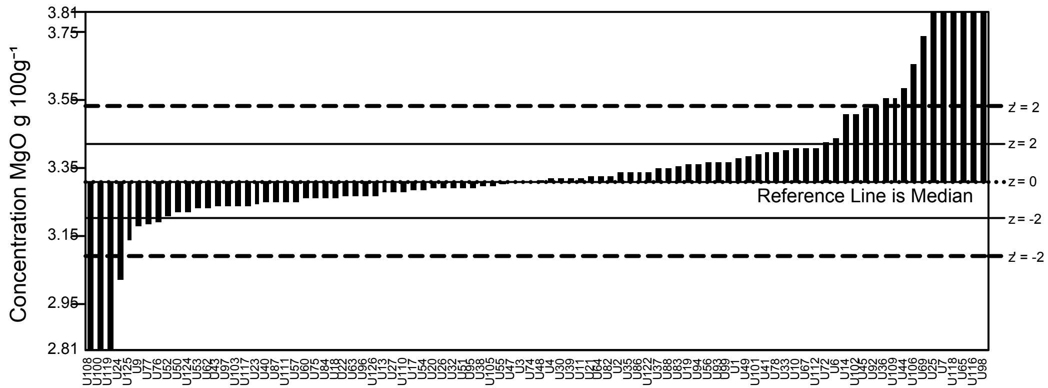
GeoPT39 - Barchart for Fe2O3T



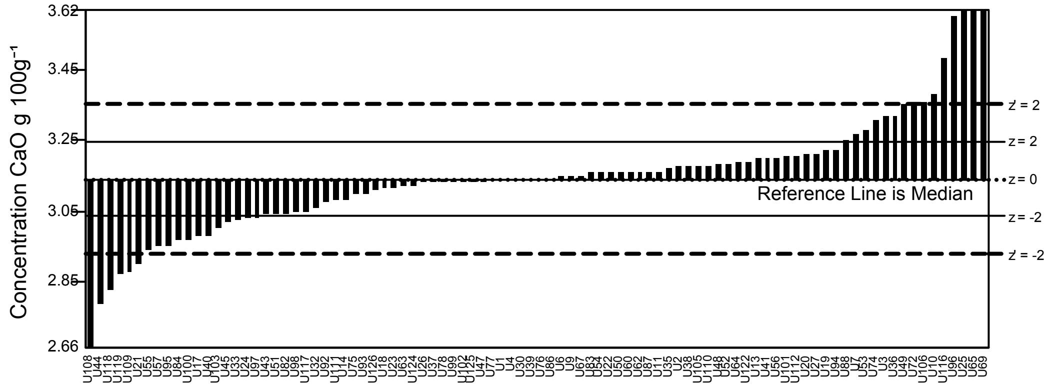
GeoPT39 - Barchart for MnO



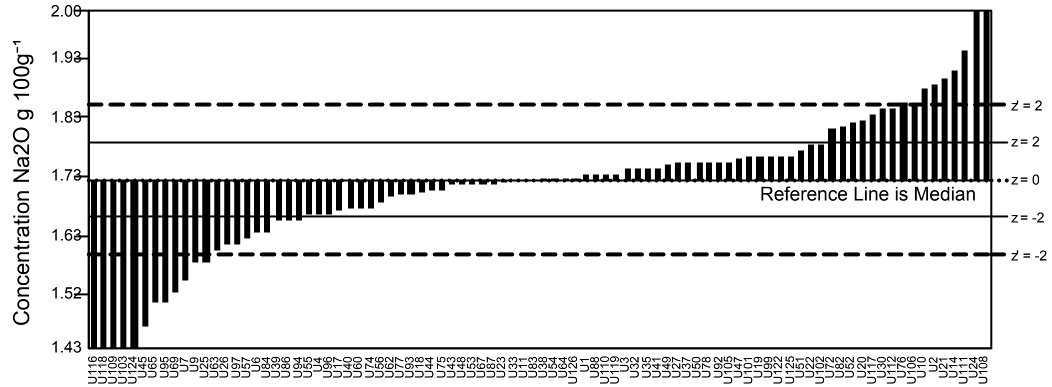
GeoPT39 - Barchart for MgO



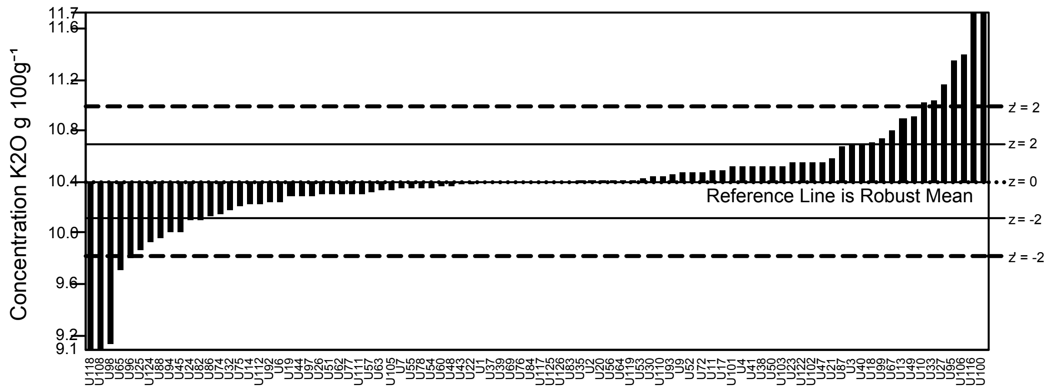
GeoPT39 - Barchart for CaO



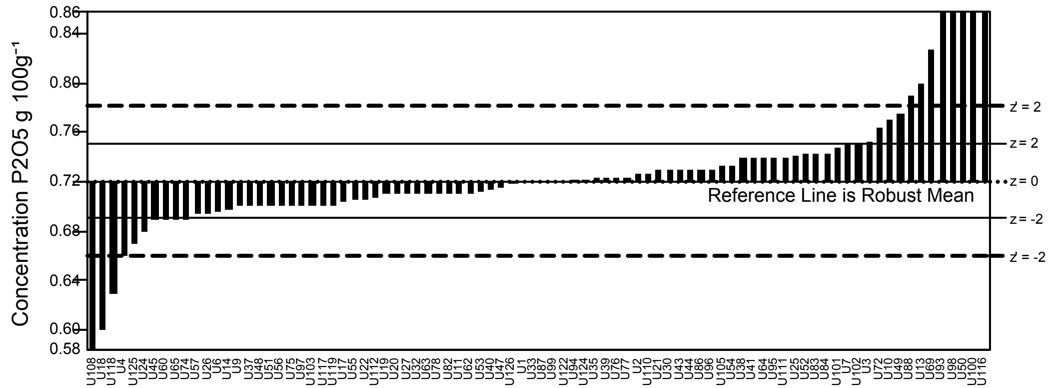
GeoPT39 - Barchart for Na2O



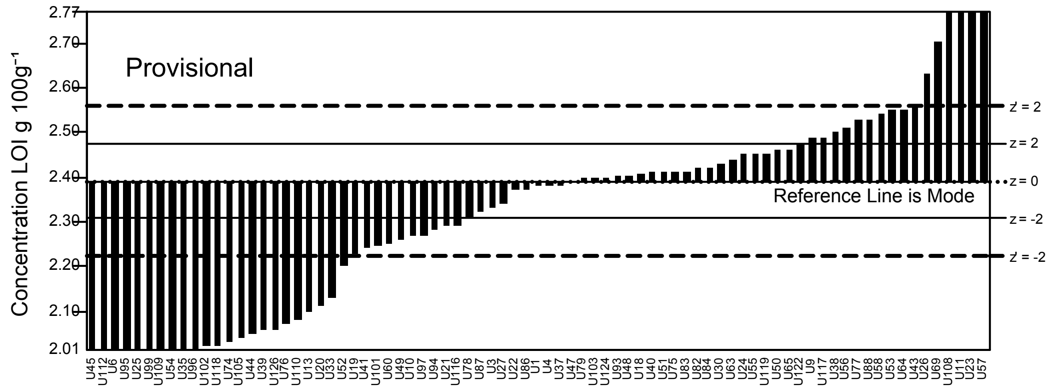
GeoPT39 - Barchart for K2O



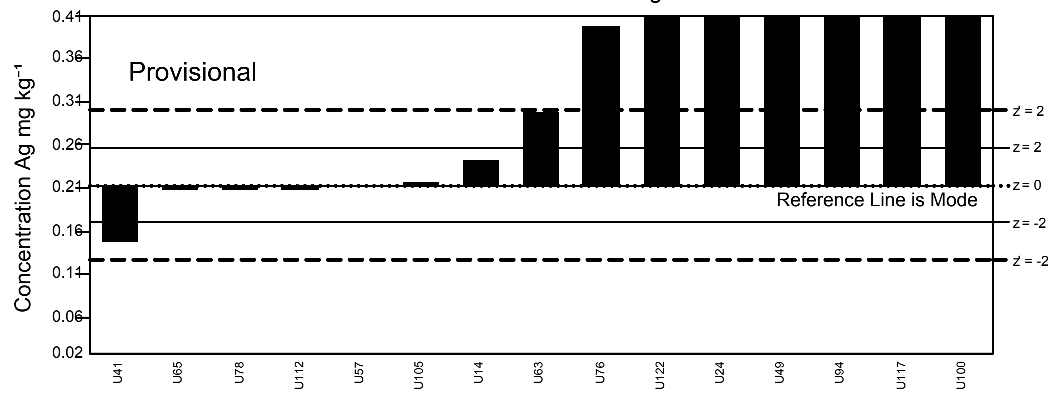
GeoPT39 - Barchart for P2O5

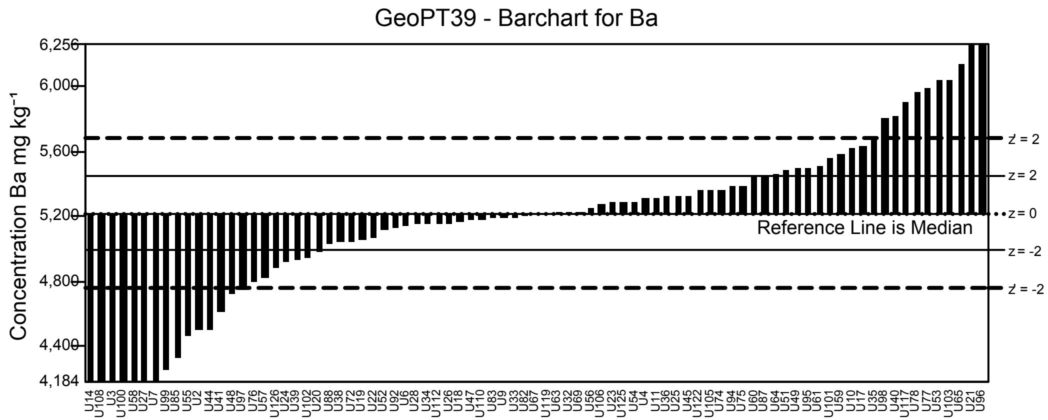


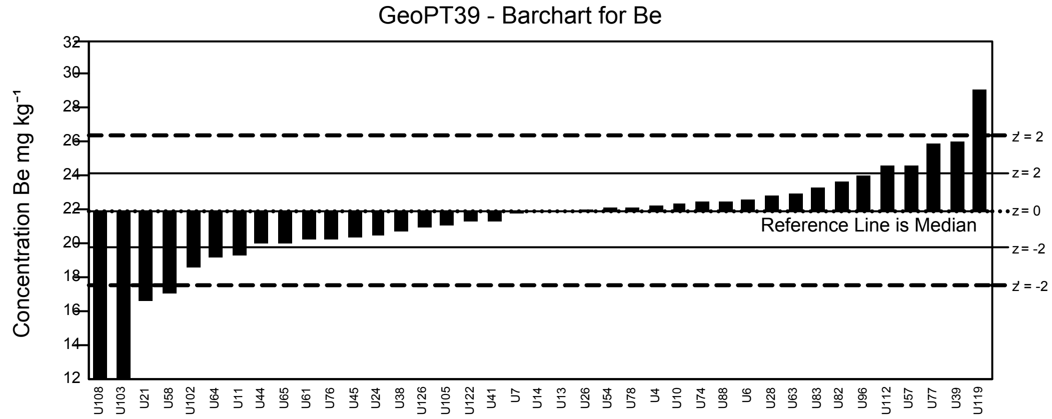
GeoPT39 - Barchart for LOI

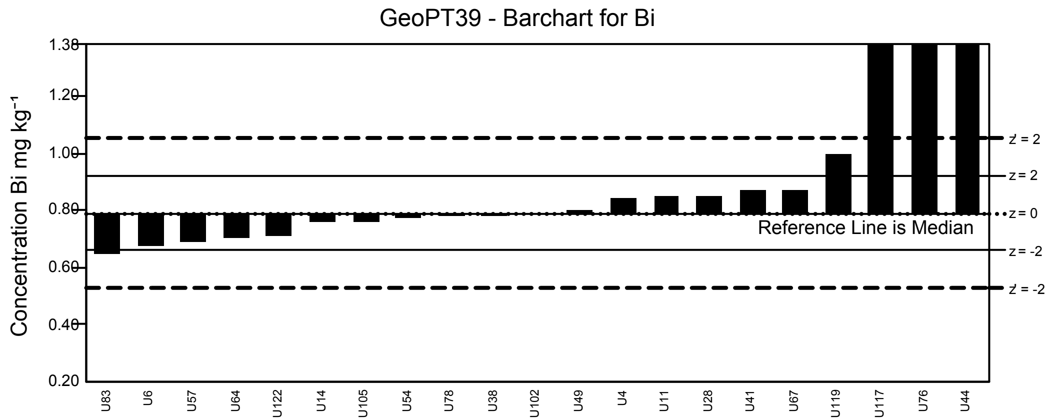


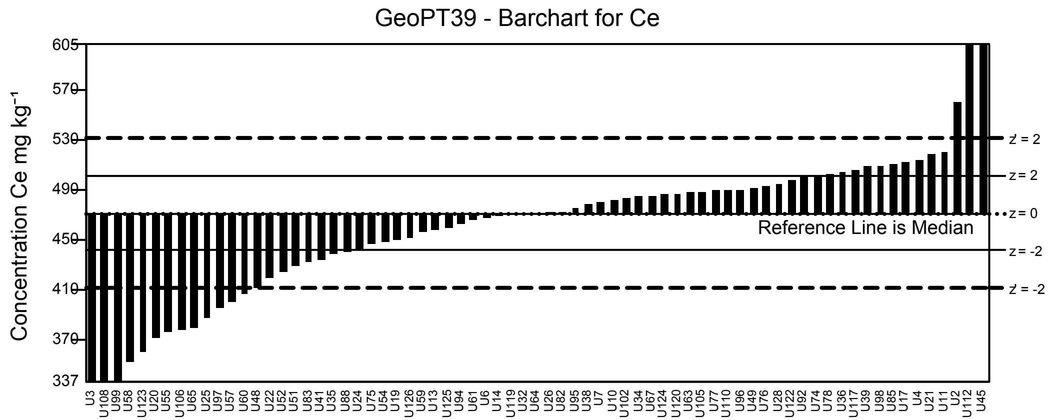
GeoPT39 - Barchart for Ag

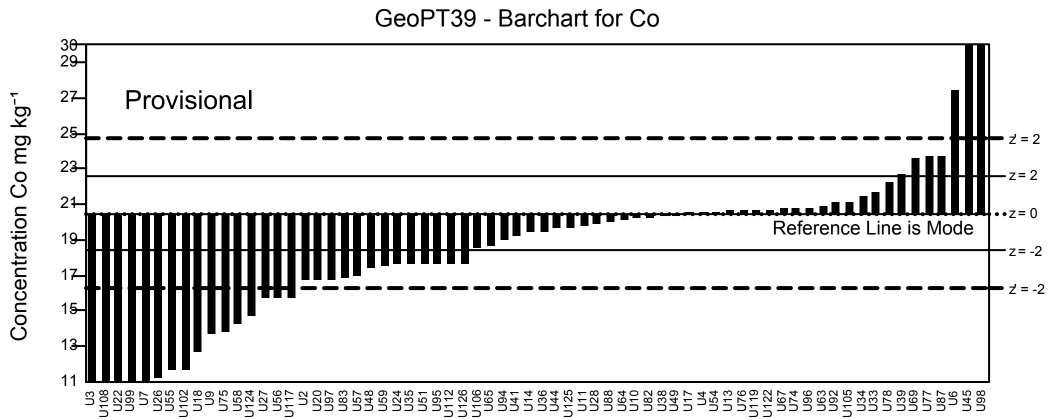


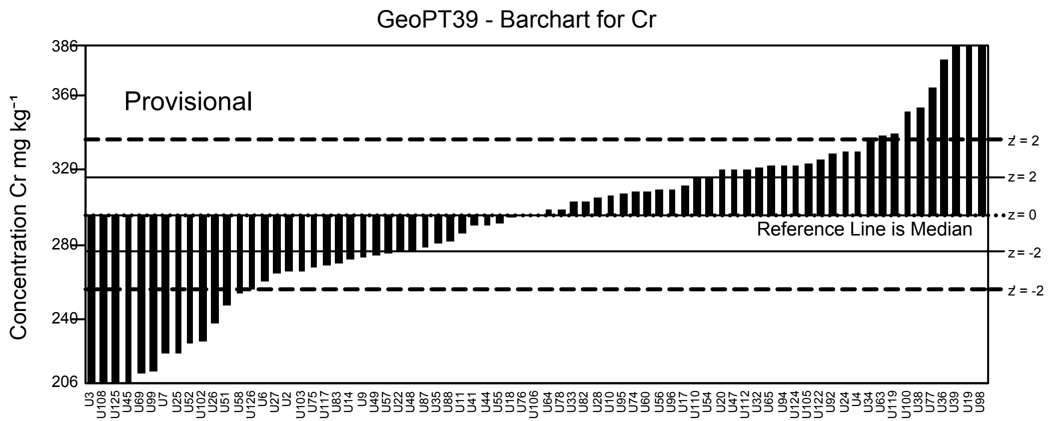

GeoPT39 - Barchart for Ba
Concentration Ba mg kg⁻¹
z' = 2
z = 2
z = 0
Reference Line is Median
z = -2
z' = -2


GeoPT39 - Barchart for Be
Concentration Be mg kg⁻¹
z' = 2
z = 2
z = 0
Reference Line is Median
z = -2
z' = -2

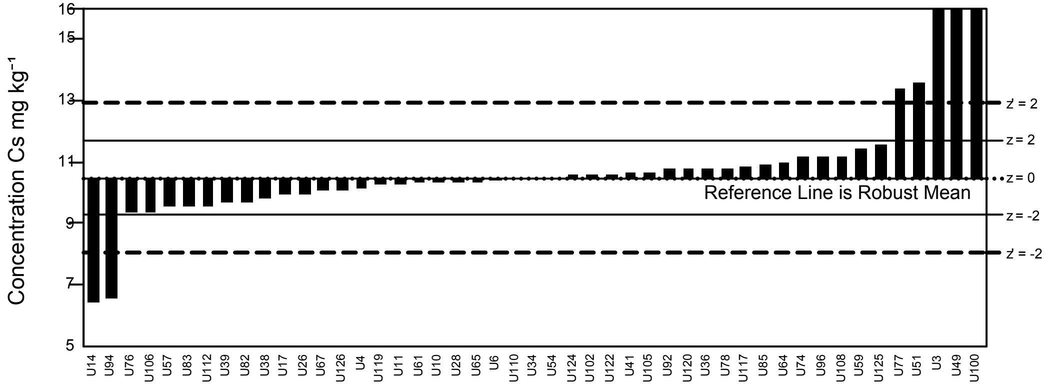

GeoPT39 - Barchart for Bi
Concentration Bi mg kg⁻¹
z' = 2
z = 2
z = 0
Reference Line is Median
z = -2
z' = -2


GeoPT39 - Barchart for Ce
Concentration Ce mg kg⁻¹
z' = 2
z = 2
z = 0
Reference Line is Median
z = -2
z' = -2

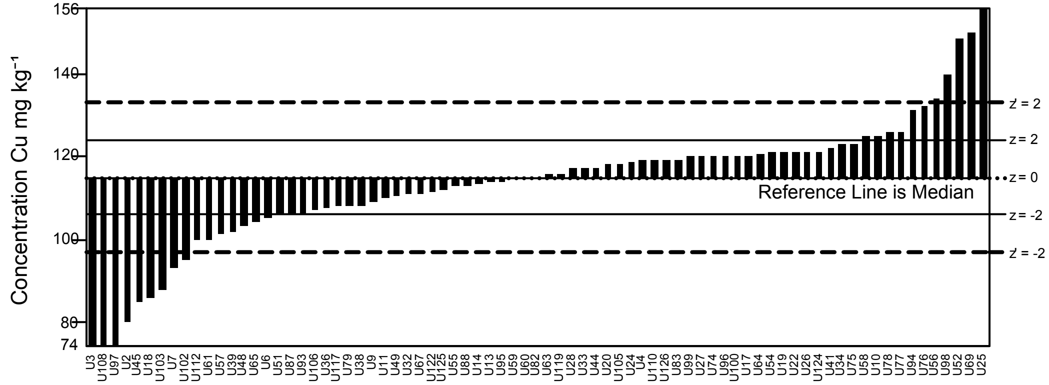

GeoPT39 - Barchart for Co
Provisional
Concentration Co mg kg⁻¹
z' = 2
z = 2
z = 0
Reference Line is Mode
z = -2
z' = -2


GeoPT39 - Barchart for Cr
Provisional
Concentration Cr mg kg⁻¹
z' = 2
z = 2
z = 0
Reference Line is Median
z = -2
z' = -2

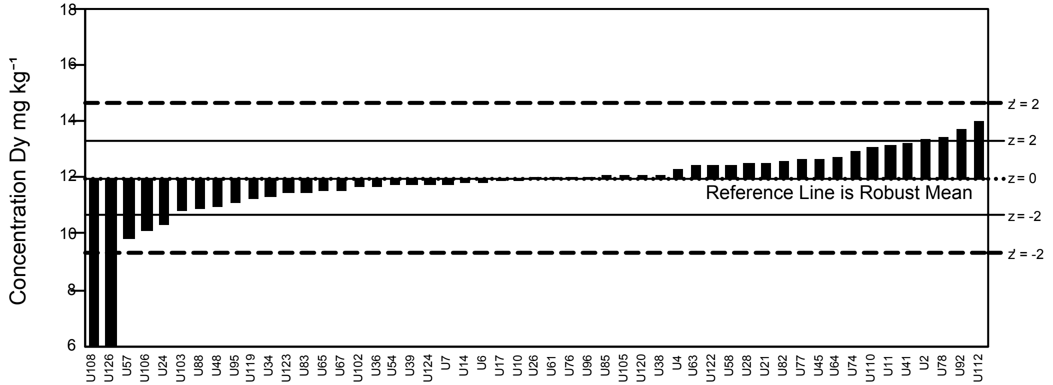
GeoPT39 - Barchart for Cs



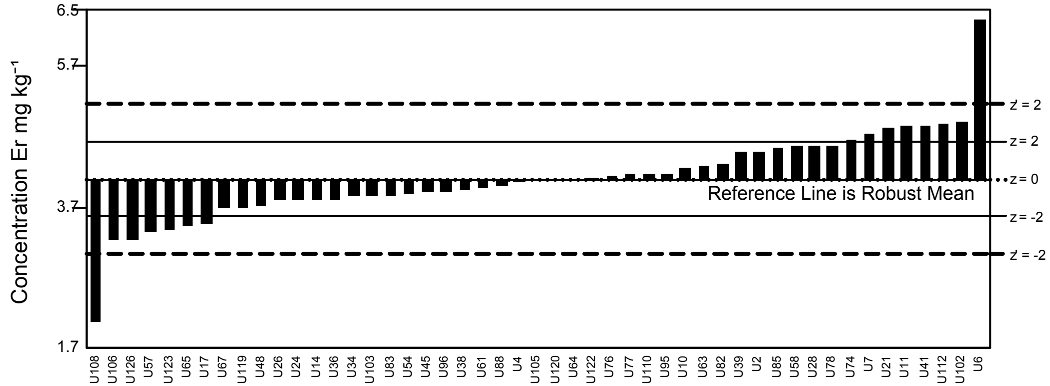
GeoPT39 - Barchart for Cu



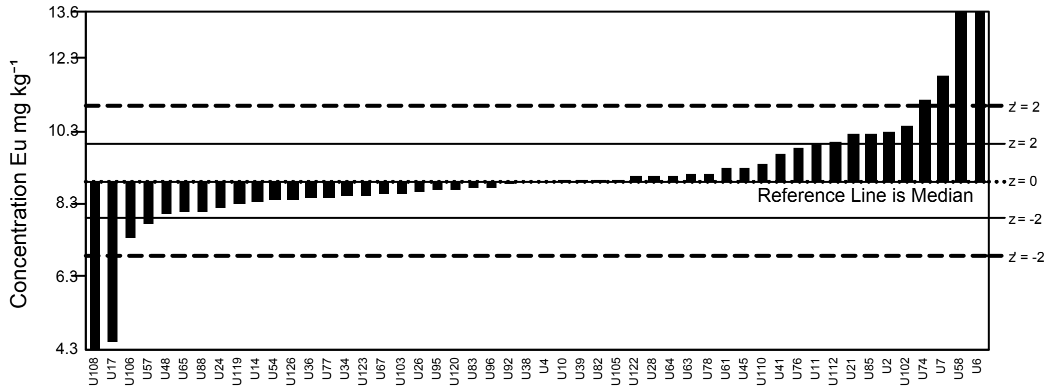
GeoPT39 - Barchart for Dy



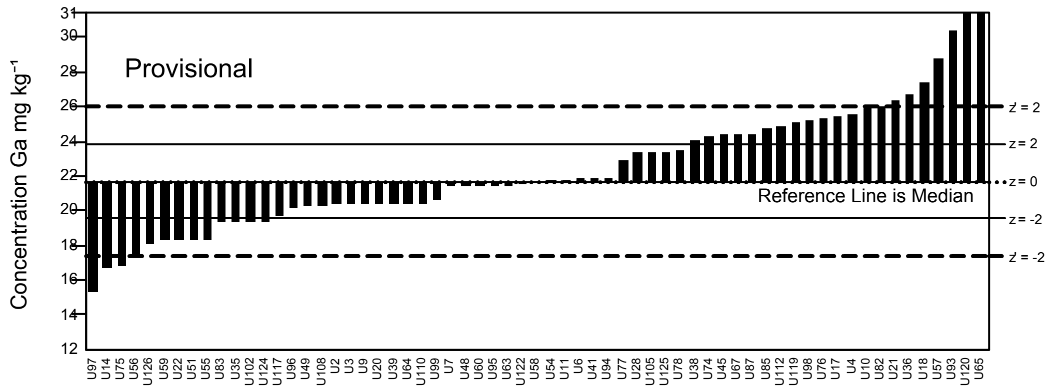
GeoPT39 - Barchart for Er

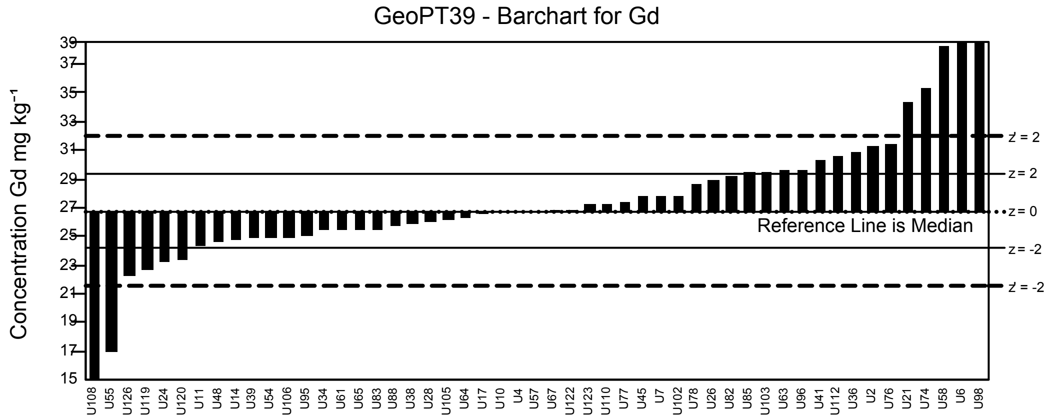


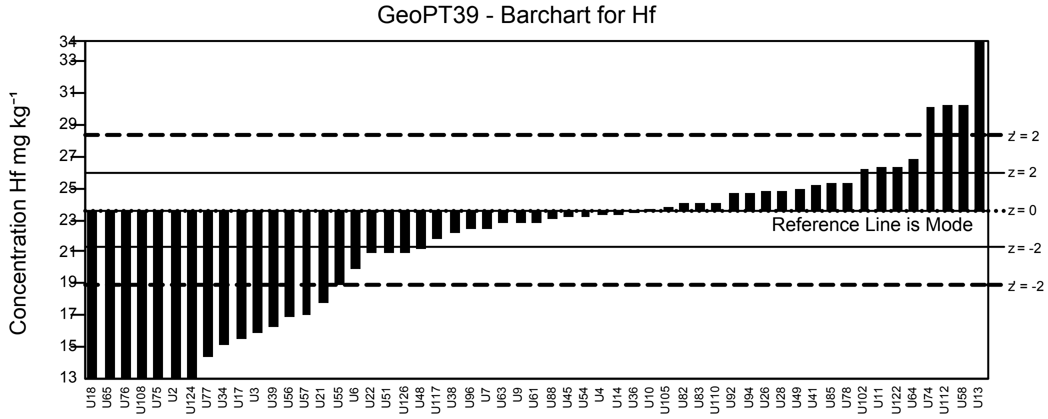
GeoPT39 - Barchart for Eu

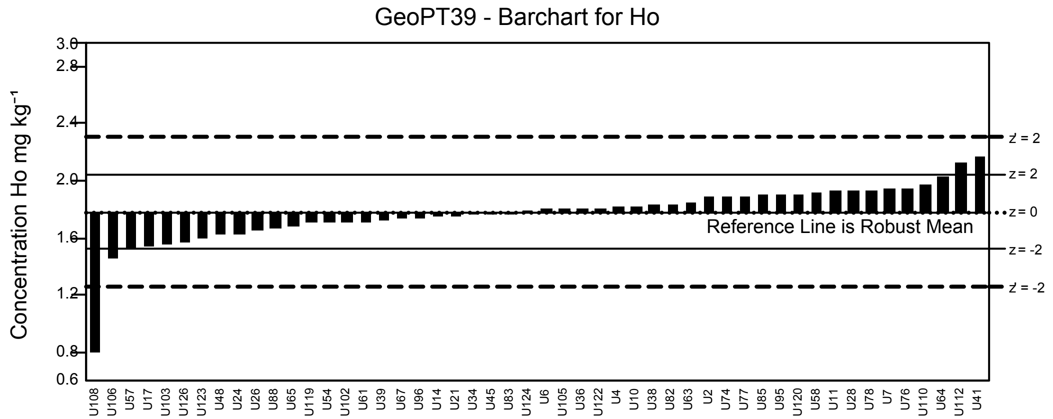


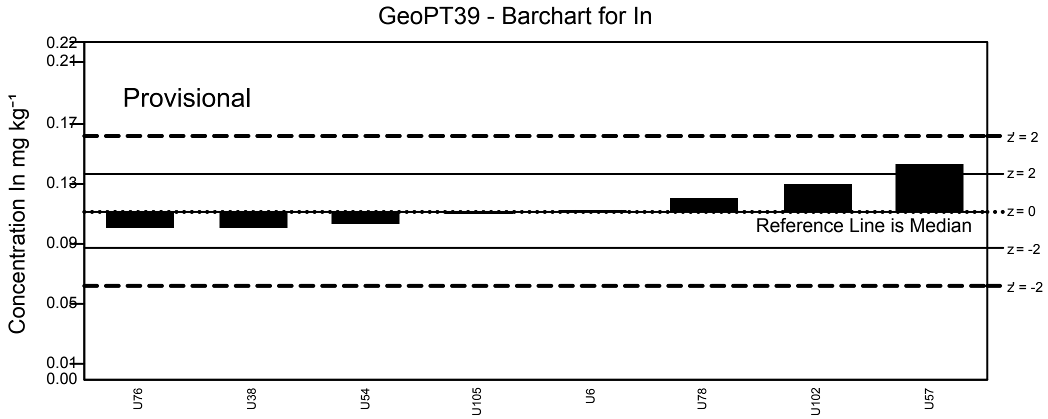
GeoPT39 - Barchart for Ga

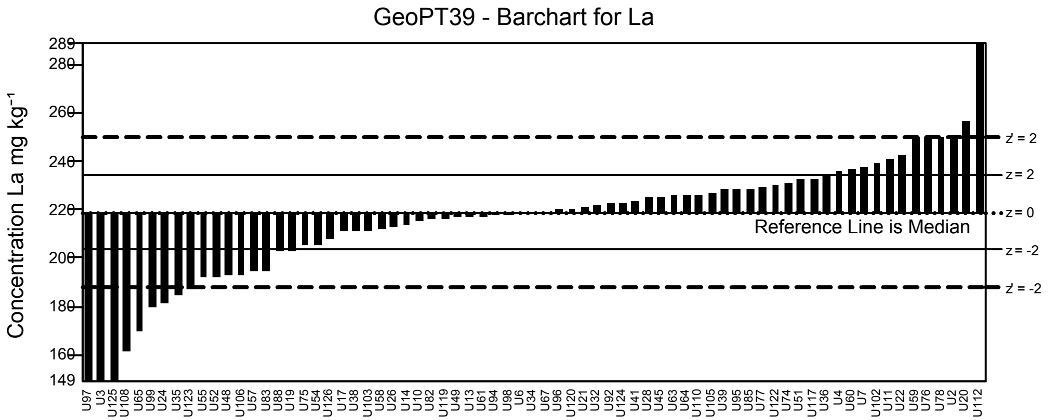


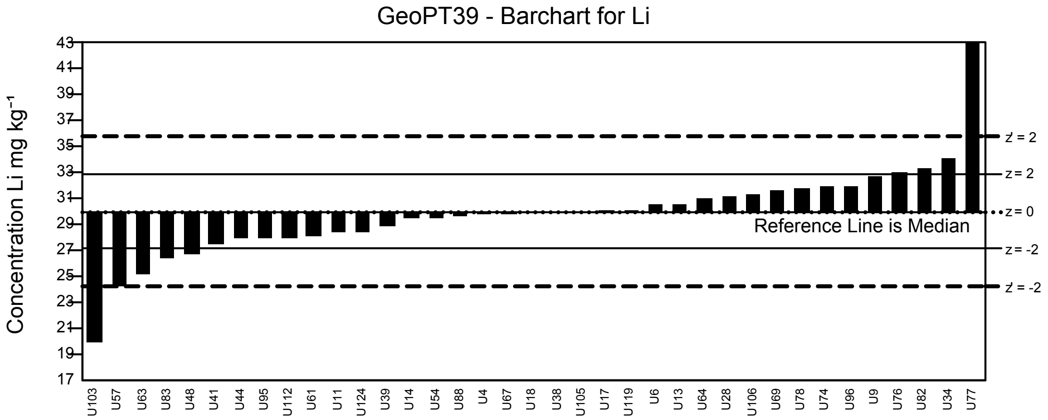

GeoPT39 - Barchart for Gd
Concentration Gd mg kg⁻¹
Reference Line is Median

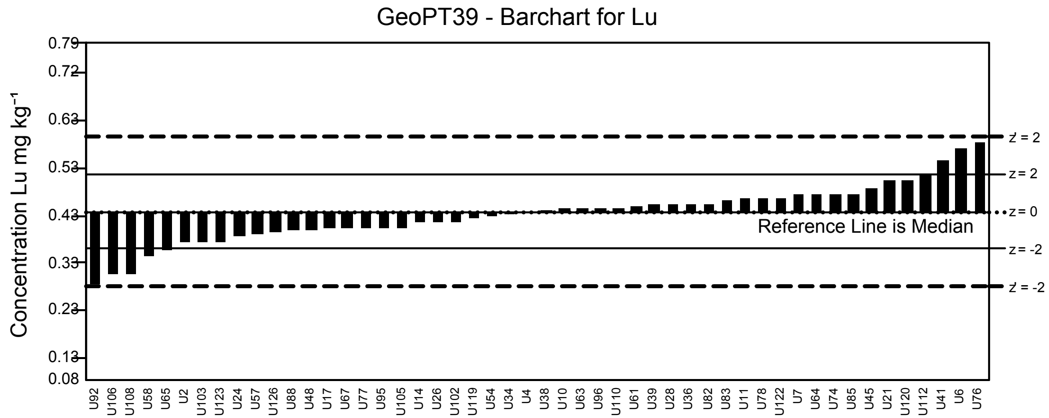

GeoPT39 - Barchart for Hf
Concentration Hf mg kg⁻¹
Reference Line is Mode

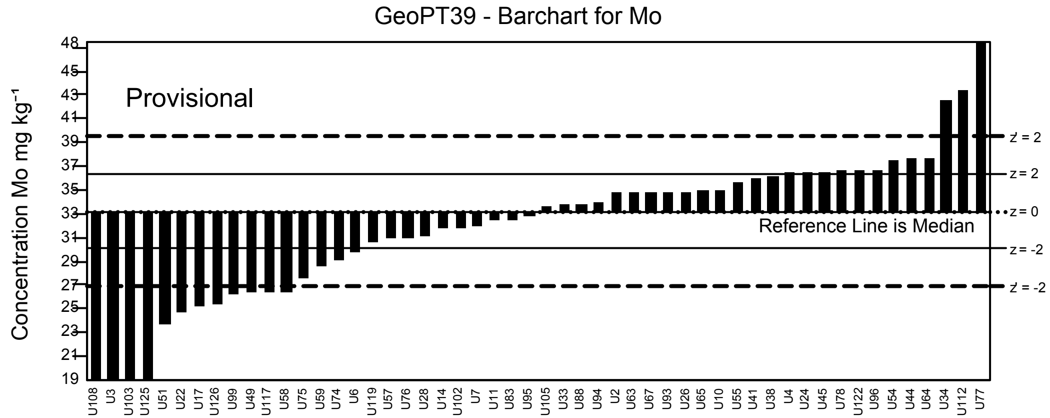

GeoPT39 - Barchart for Ho
Concentration Ho mg kg⁻¹
Reference Line is Robust Mean

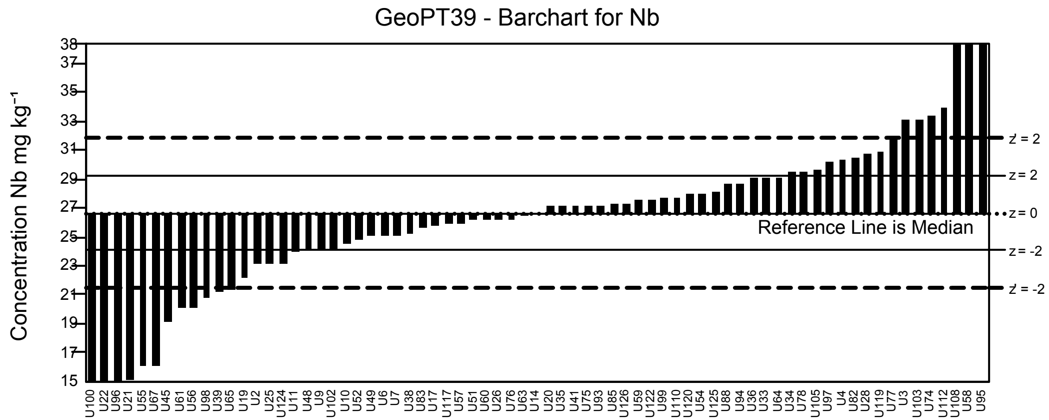

GeoPT39 - Barchart for In
Provisional
Concentration In mg kg⁻¹
Reference Line is Median

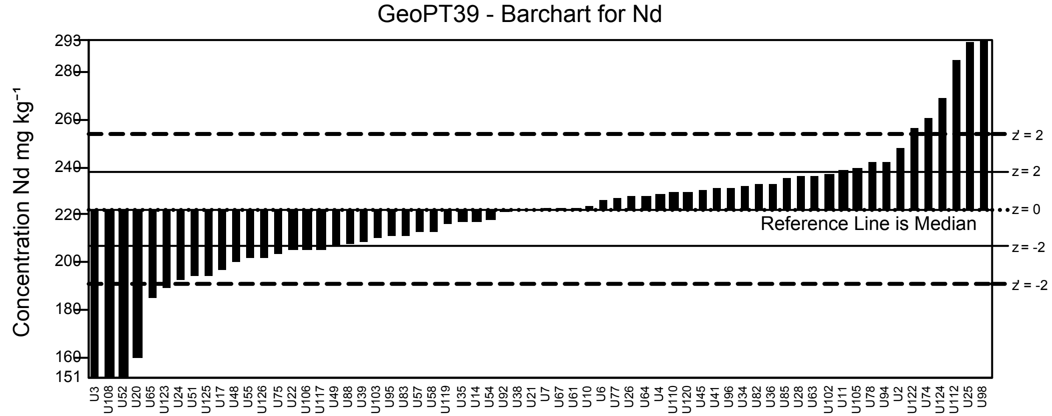

GeoPT39 - Barchart for La
Concentration La mg kg⁻¹
Reference Line is Median

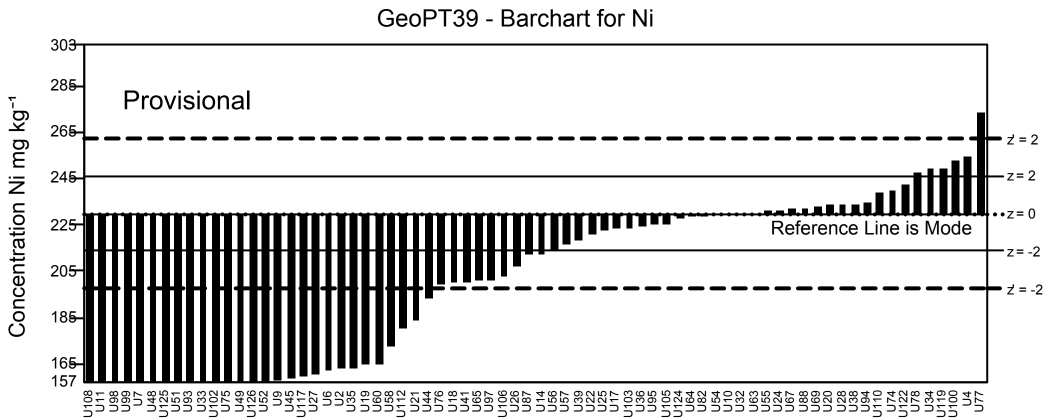

GeoPT39 - Barchart for Li
Concentration Li mg kg⁻¹
Reference Line is Median

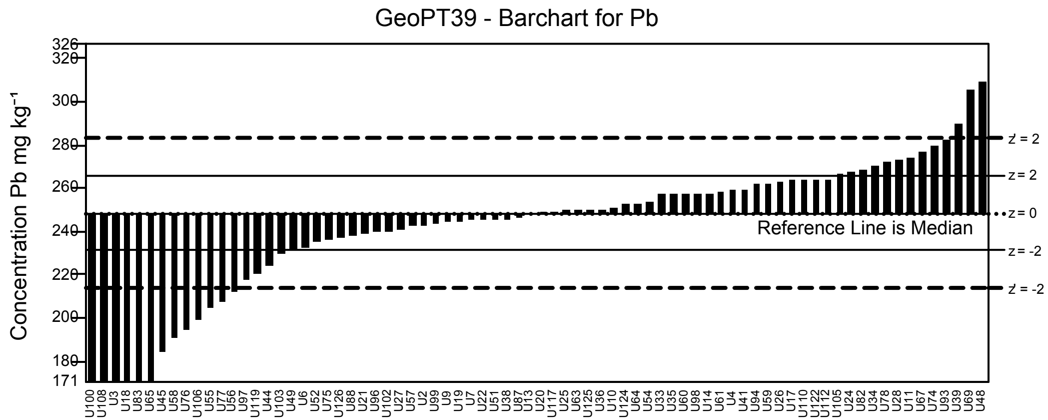

GeoPT39 - Barchart for Lu
Concentration Lu mg kg⁻¹
Reference Line is Median
z' = 2
z = 2
z = 0
z = -2
z' = -2


GeoPT39 - Barchart for Mo
Provisional
Concentration Mo mg kg⁻¹
Reference Line is Median
z' = 2
z = 2
z = 0
z = -2
z' = -2

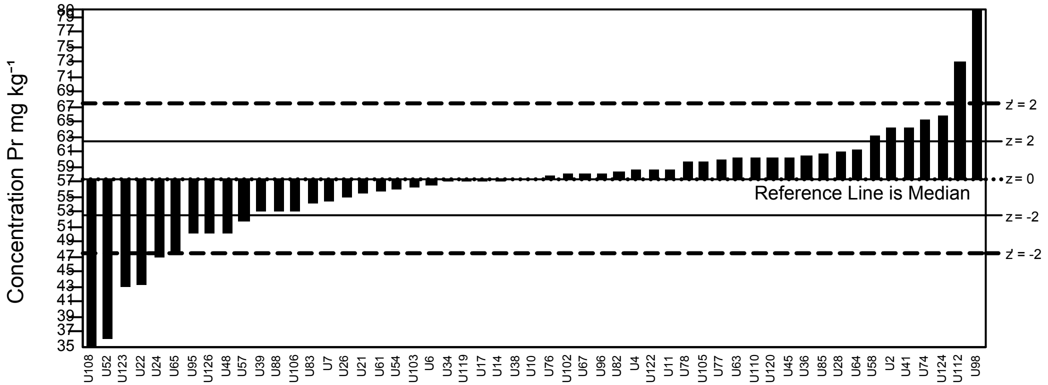

GeoPT39 - Barchart for Nb
Concentration Nb mg kg⁻¹
Reference Line is Median
z' = 2
z = 2
z = 0
z = -2
z' = -2


GeoPT39 - Barchart for Nd
Concentration Nd mg kg⁻¹
Reference Line is Median
z' = 2
z = 2
z = 0
z = -2
z' = -2

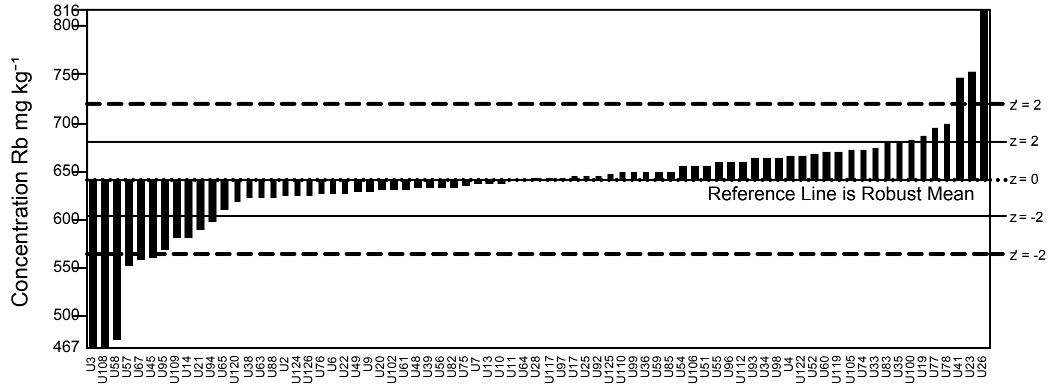

GeoPT39 - Barchart for Ni
Provisional
Concentration Ni mg kg⁻¹
Reference Line is Mode
z' = 2
z = 2
z = 0
z = -2
z' = -2


GeoPT39 - Barchart for Pb
Concentration Pb mg kg⁻¹
Reference Line is Median
z' = 2
z = 2
z = 0
z = -2
z' = -2

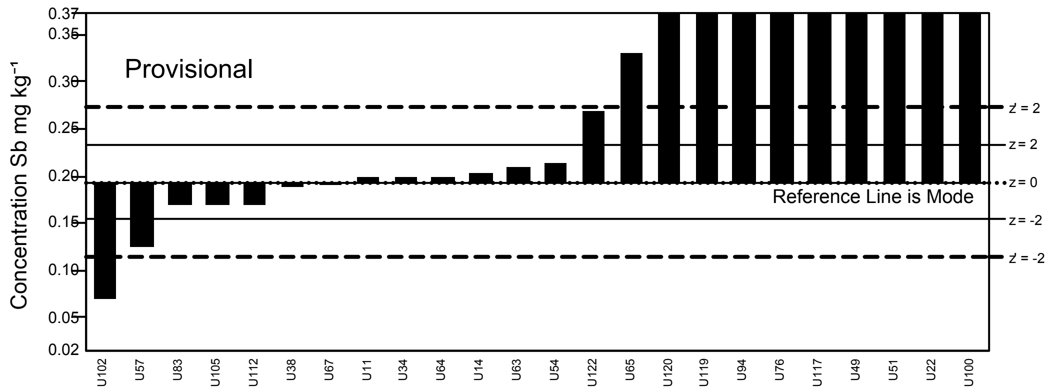
GeoPT39 - Barchart for Pr



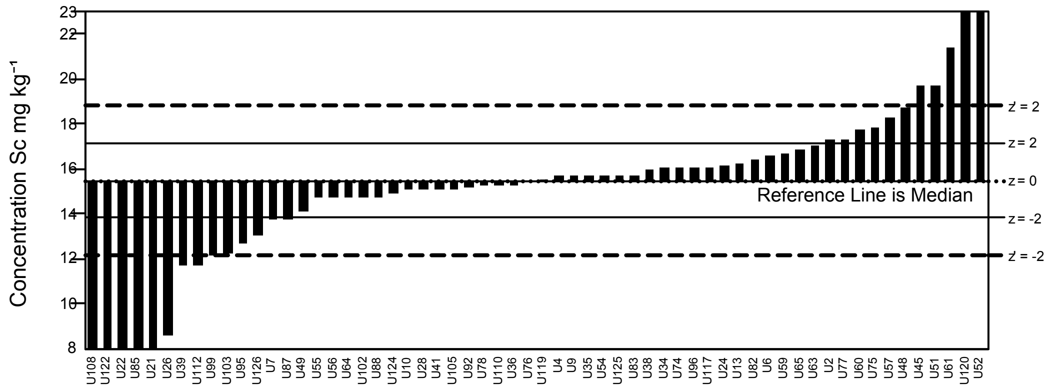
GeoPT39 - Barchart for Rb



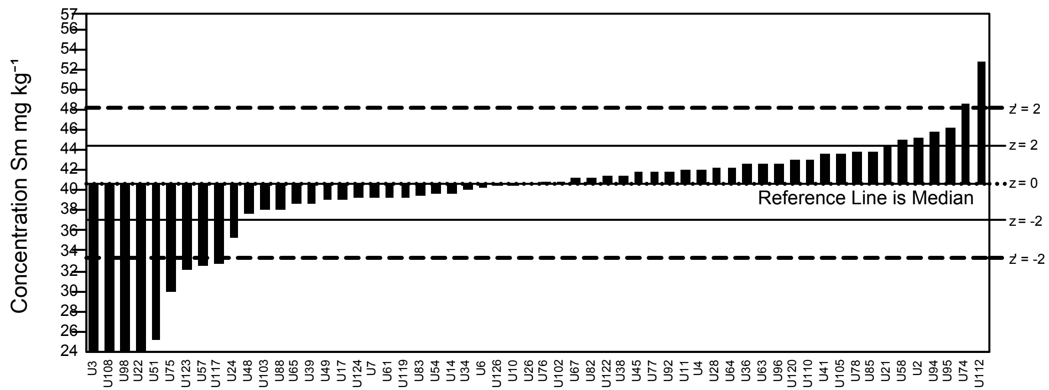
GeoPT39 - Barchart for Sb



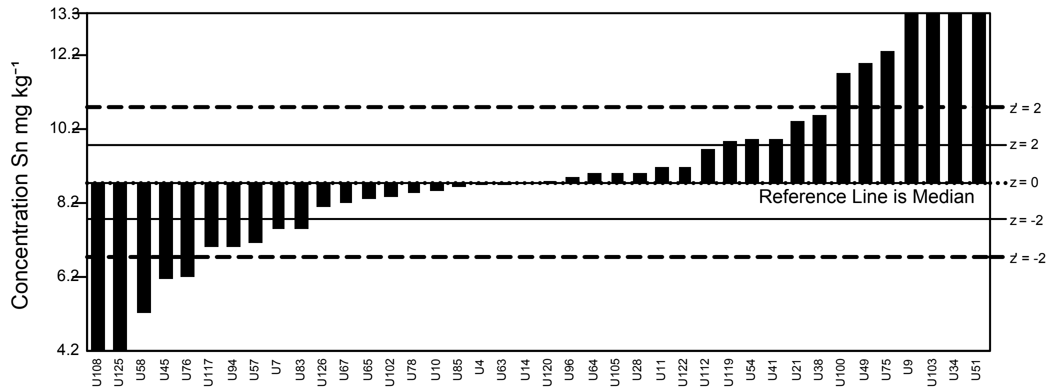
GeoPT39 - Barchart for Sc



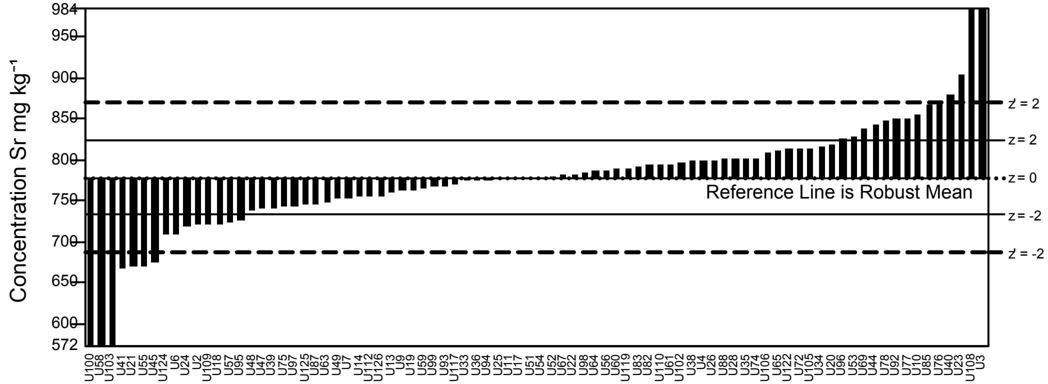
GeoPT39 - Barchart for Sm



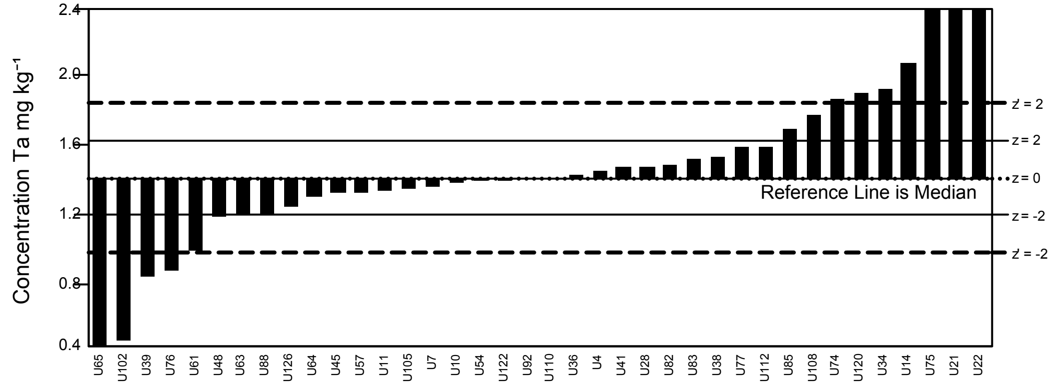
GeoPT39 - Barchart for Sn



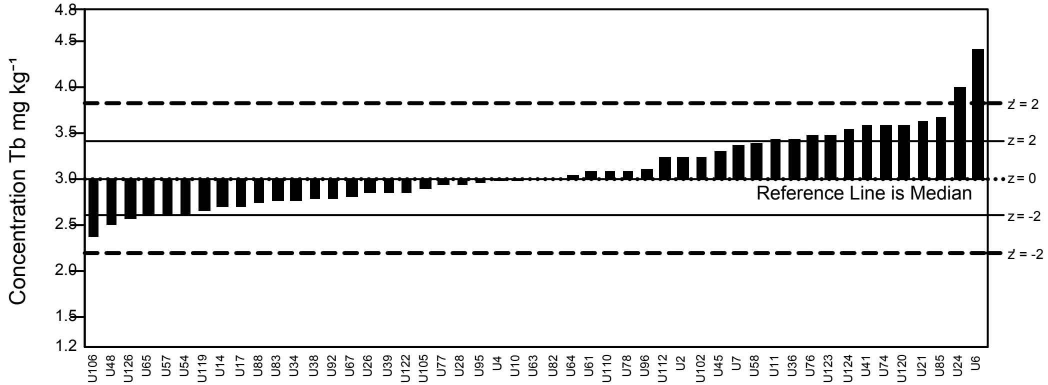
GeoPT39 - Barchart for Sr



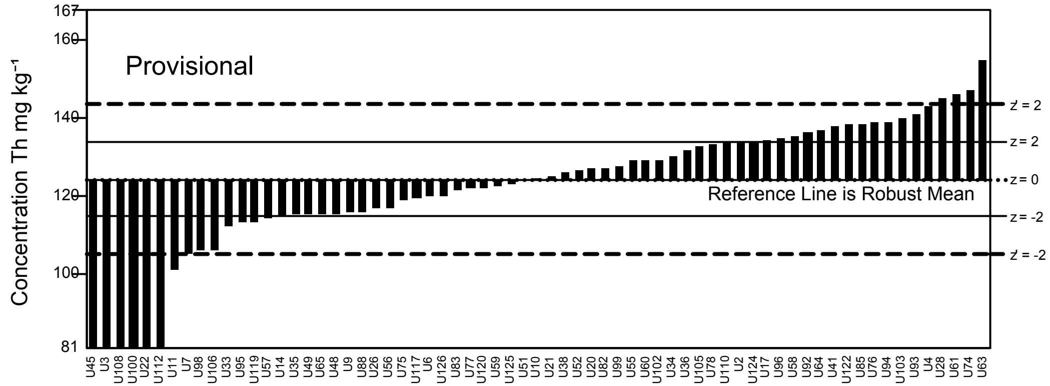
GeoPT39 - Barchart for Ta



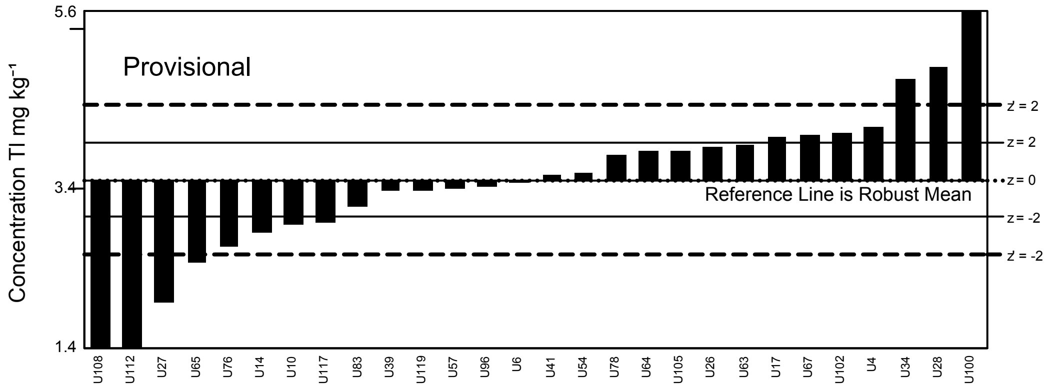
GeoPT39 - Barchart for Tb



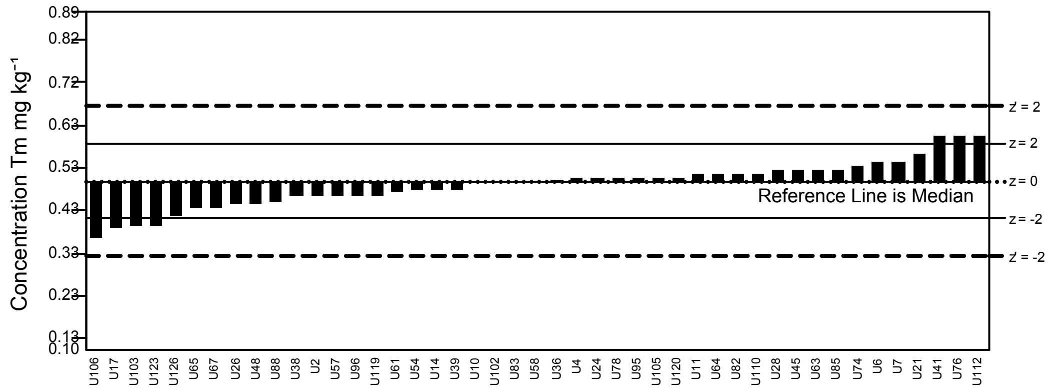
GeoPT39 - Barchart for Th



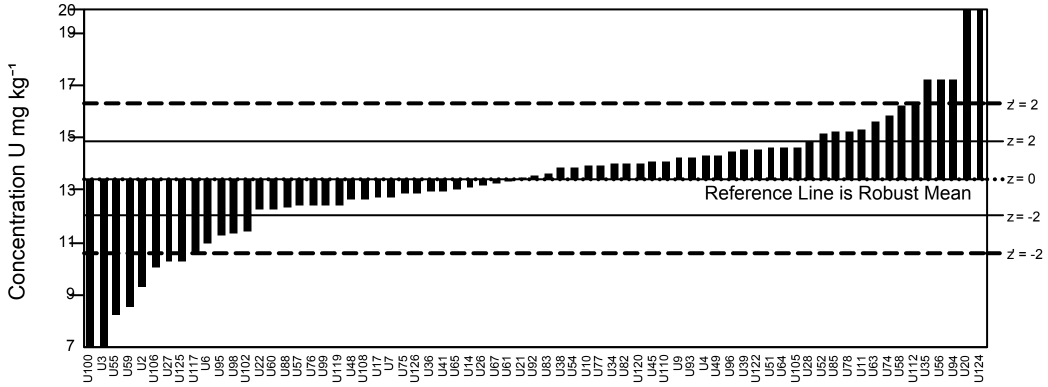
GeoPT39 - Barchart for Tl



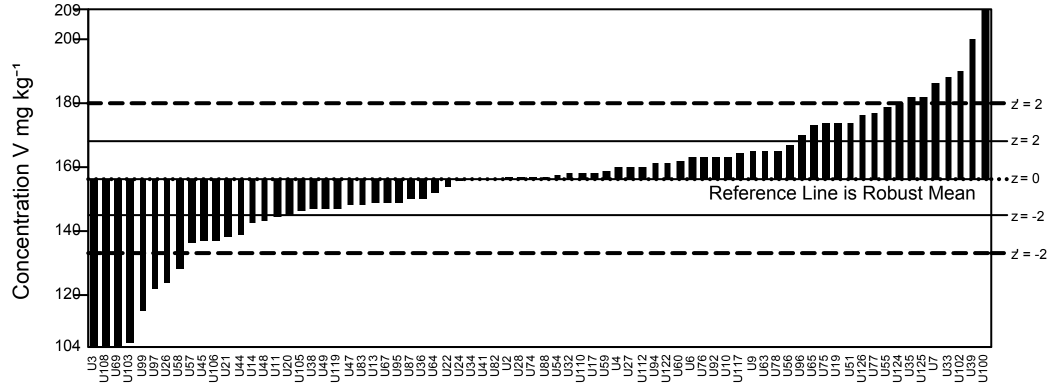
GeoPT39 - Barchart for Tm



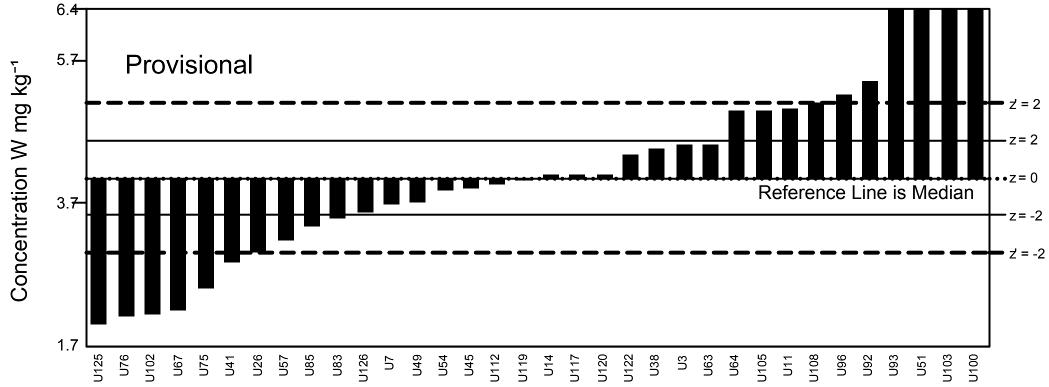
GeoPT39 - Barchart for U



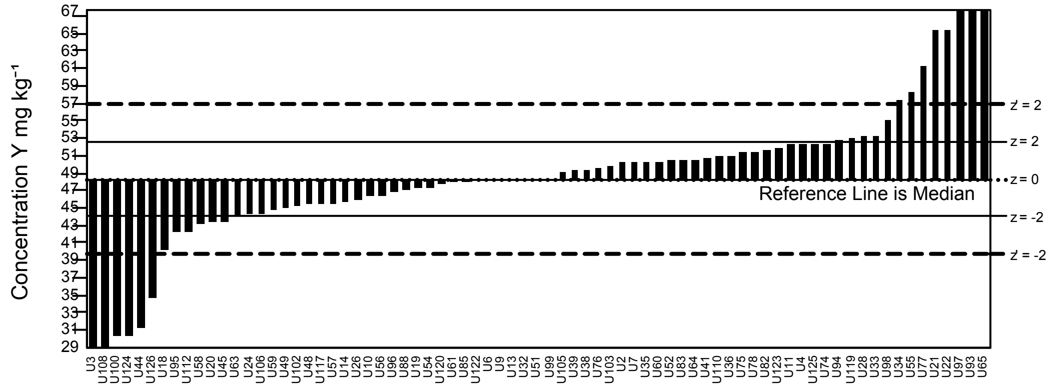
GeoPT39 - Barchart for V



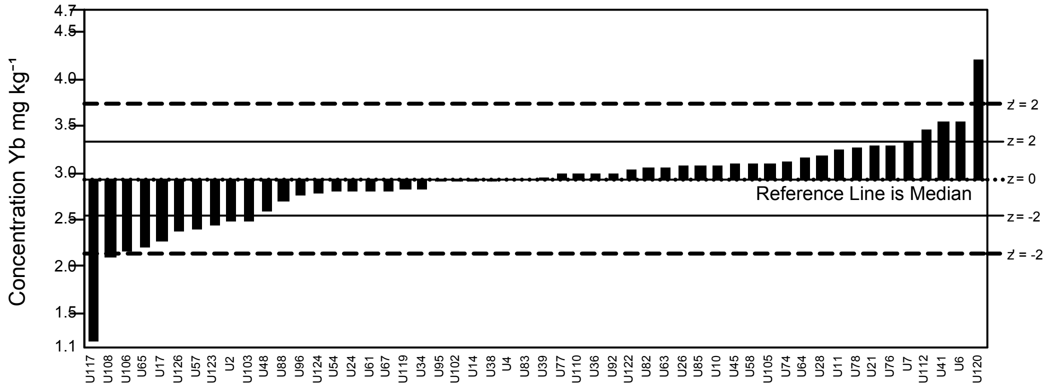
GeoPT39 - Barchart for W



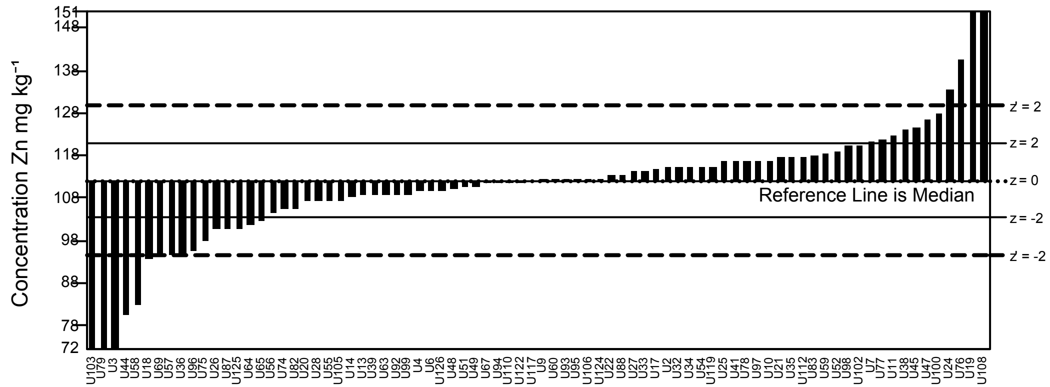
GeoPT39 - Barchart for Y



GeoPT39 - Barchart for Yb



GeoPT39 - Barchart for Zn



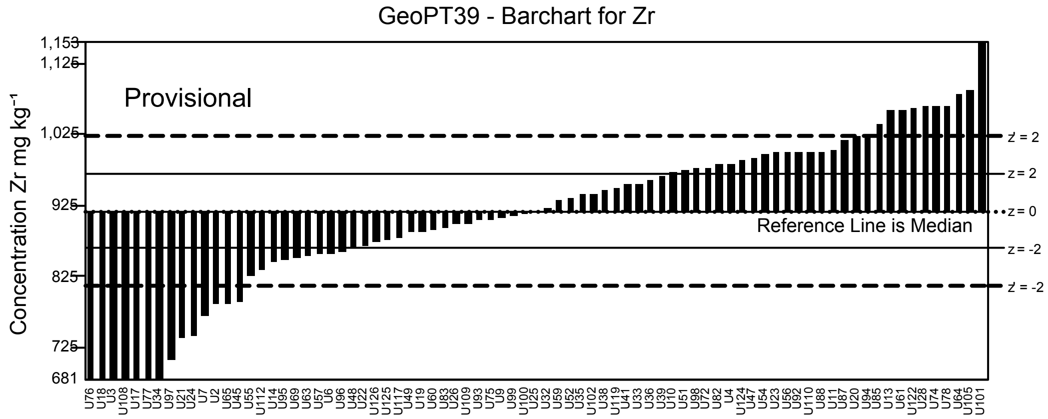
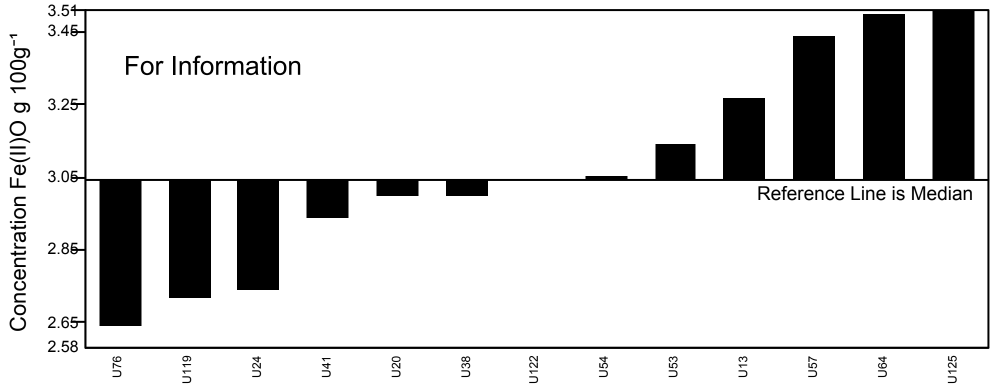
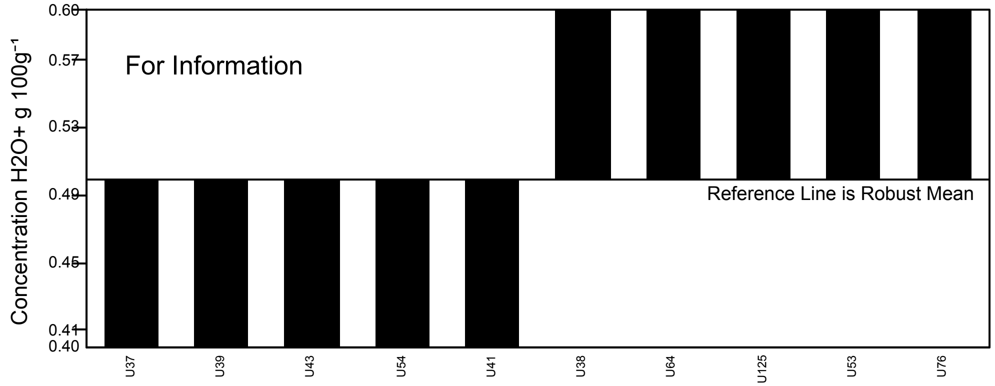


Figure 1: GeoPT39 - Syenite, SyMP-1. Data distribution charts for elements for which values were assigned or provisional values given for guidance. Horizontal lines show the limits for -2<z<2 for pure geochemistry labs (solid lines) and -2<z'<2 for applied geochemistry labs (pecked lines).

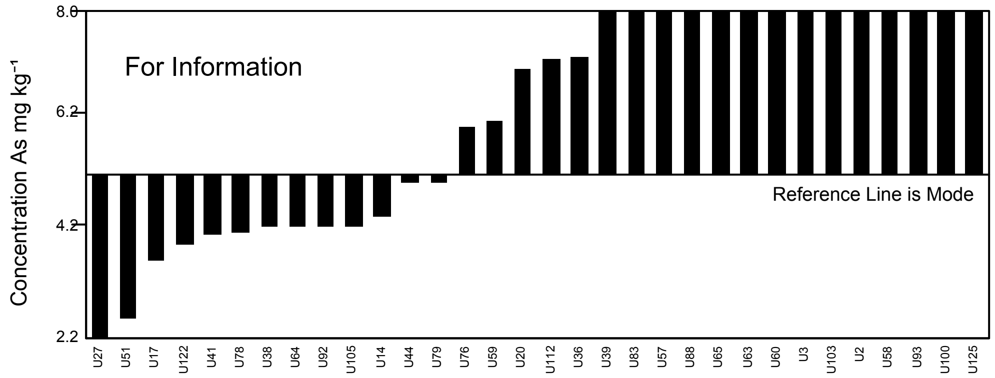
GeoPT39 - Barchart for Fe(II)O



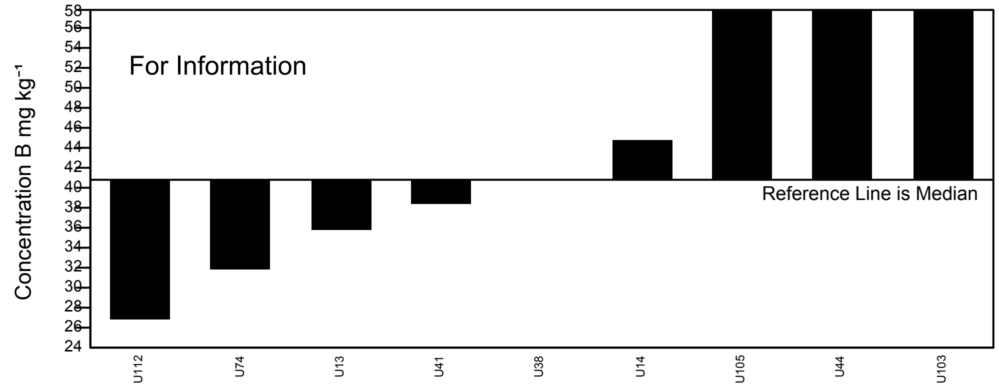
GeoPT39 - Barchart for H2O+



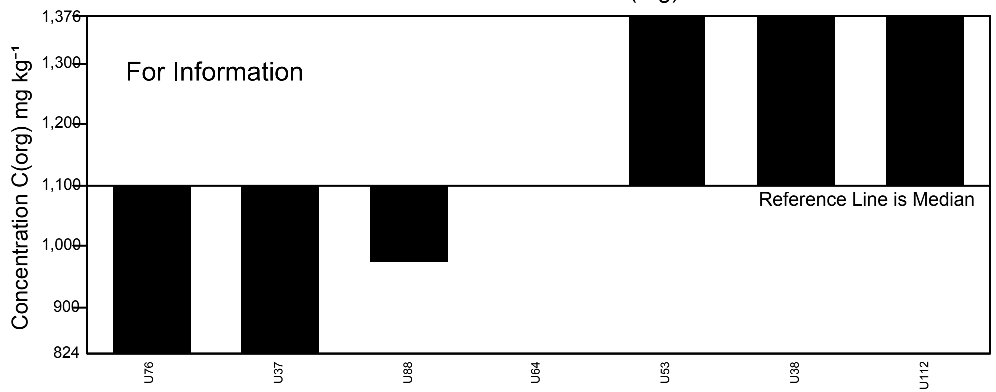
GeoPT39 - Barchart for As



GeoPT39 - Barchart for B



GeoPT39 - Barchart for C(org)



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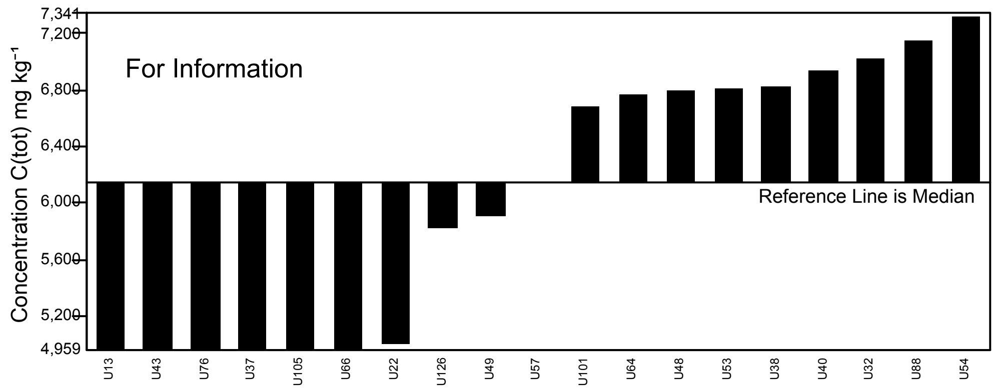
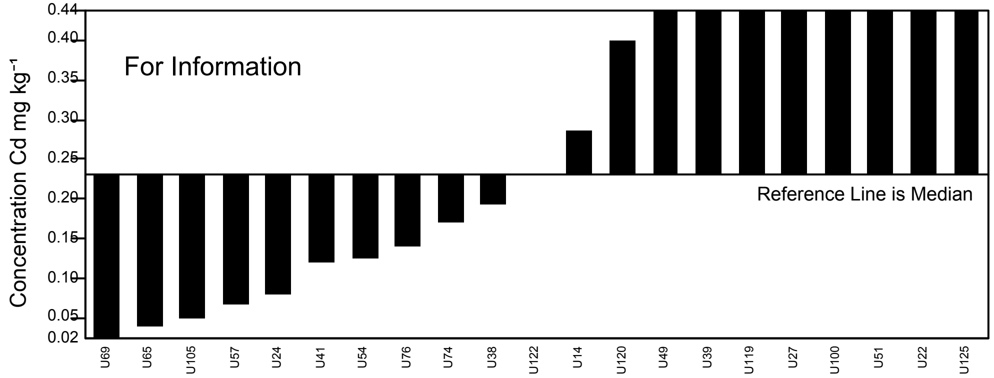
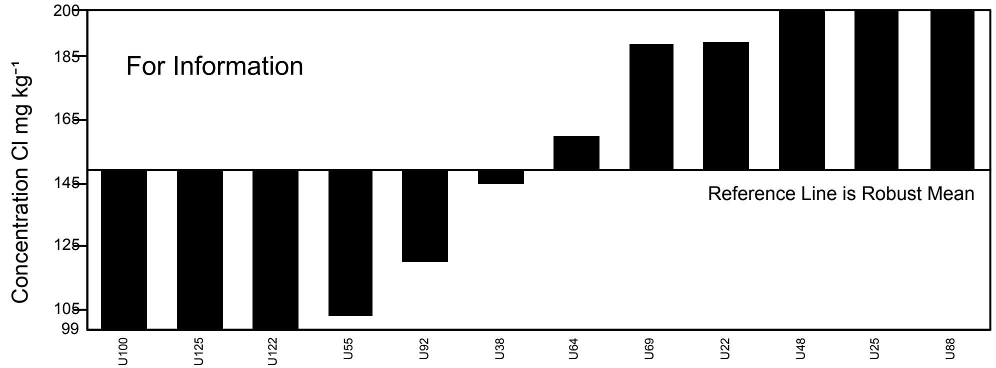


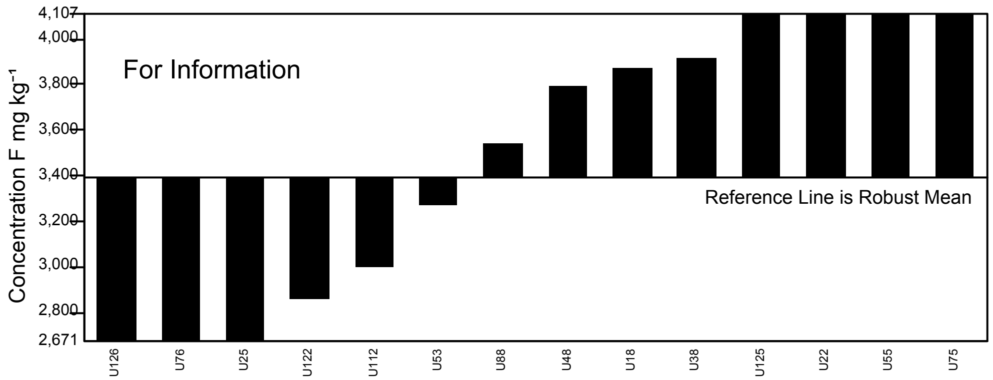
GeoPT39 - Barchart for Cd



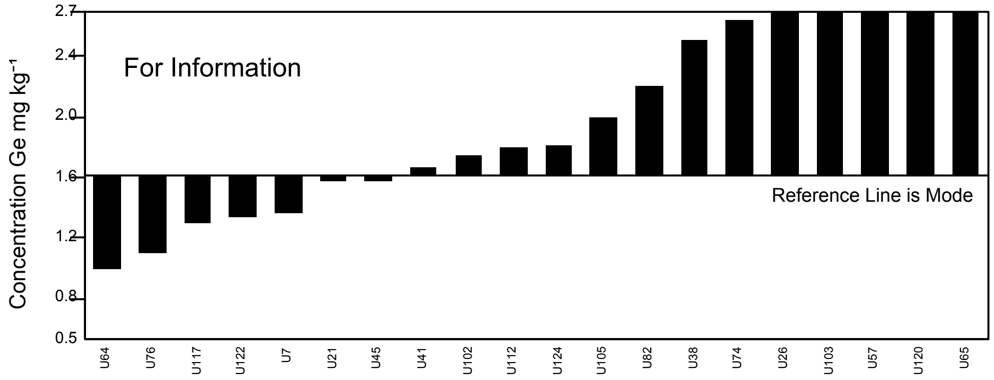
GeoPT39 - Barchart for Cl



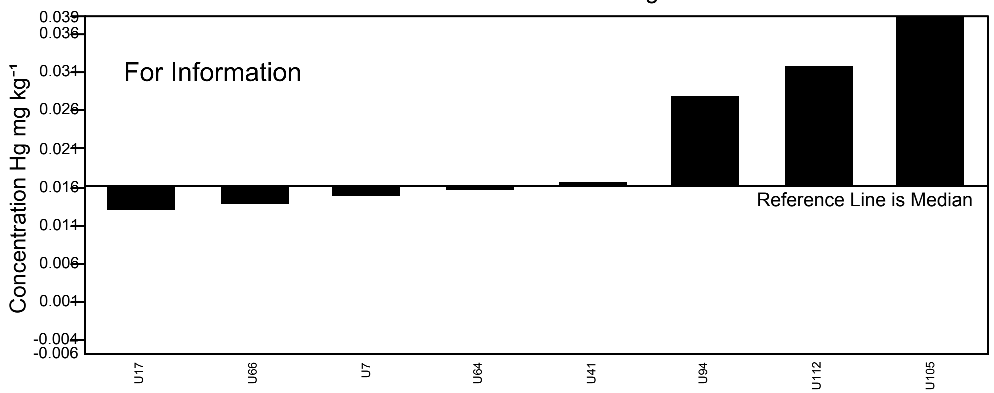
GeoPT39 - Barchart for F



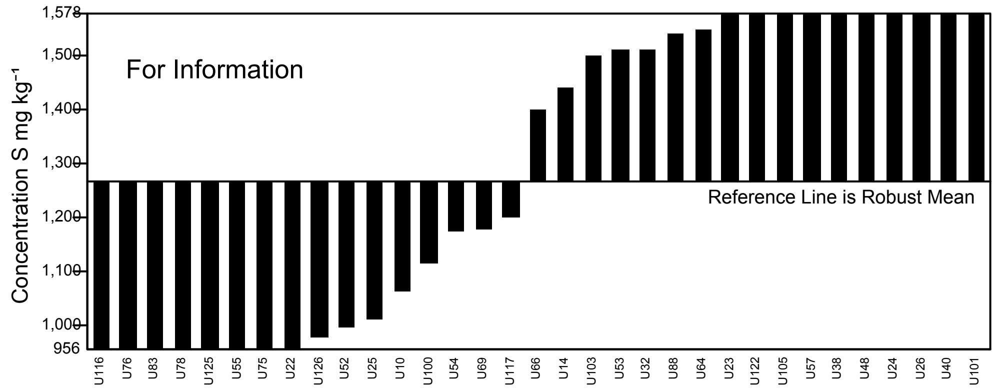
GeoPT39 - Barchart for Ge

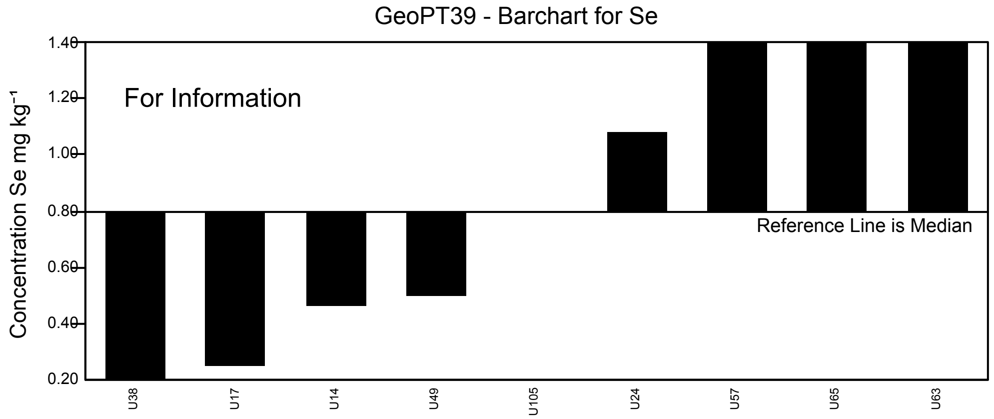


GeoPT39 - Barchart for Hg



GeoPT39 - Barchart for S





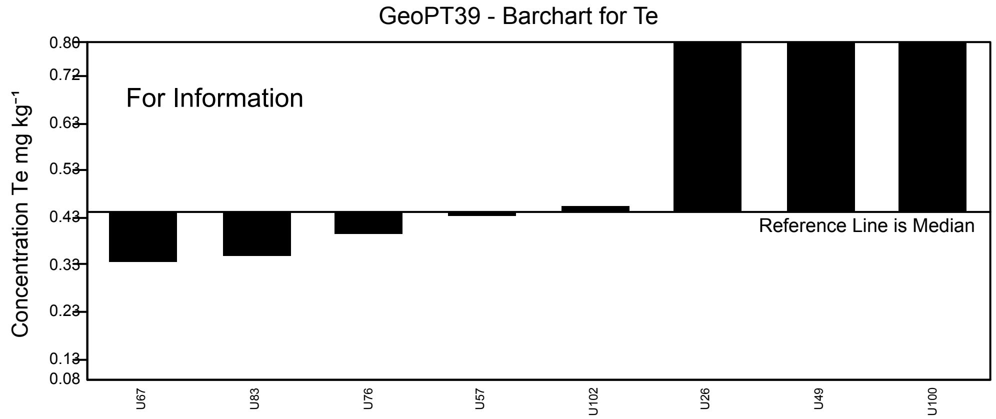


Figure 2: GeoPT39 - Syenite, SyMP-1. Data distribution charts provided for information only for elements for which values could not be assigned.

Multiple Z-Score Chart for GeoPT39

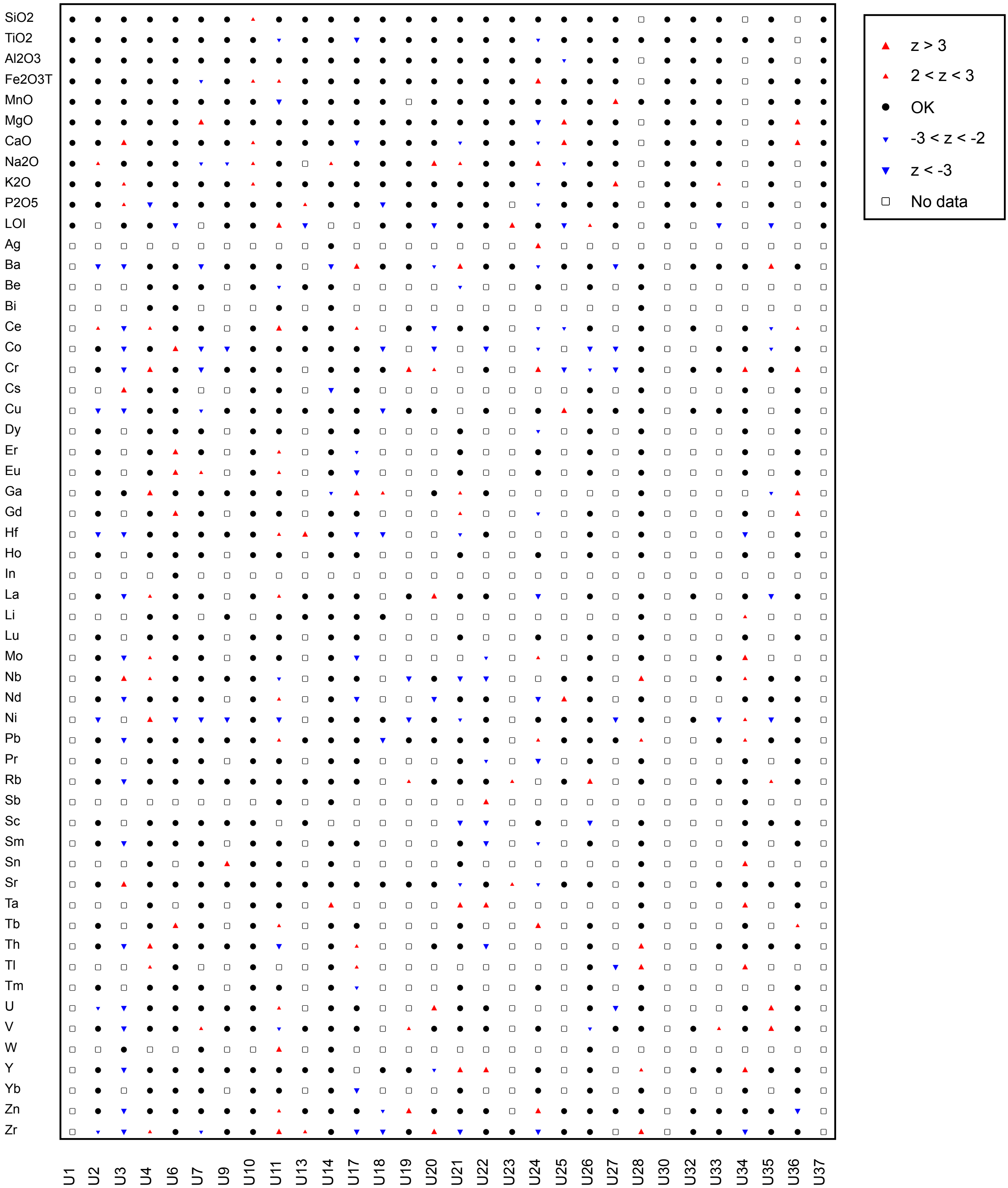


Figure 3: GeoPT39 - Syenite, SyMP-1. Multiple z-score charts for laboratories participating in the GeoPT39 round. Symbols indicate whether or not an elemental result complies with the -2<z<+2 criteria (see key).

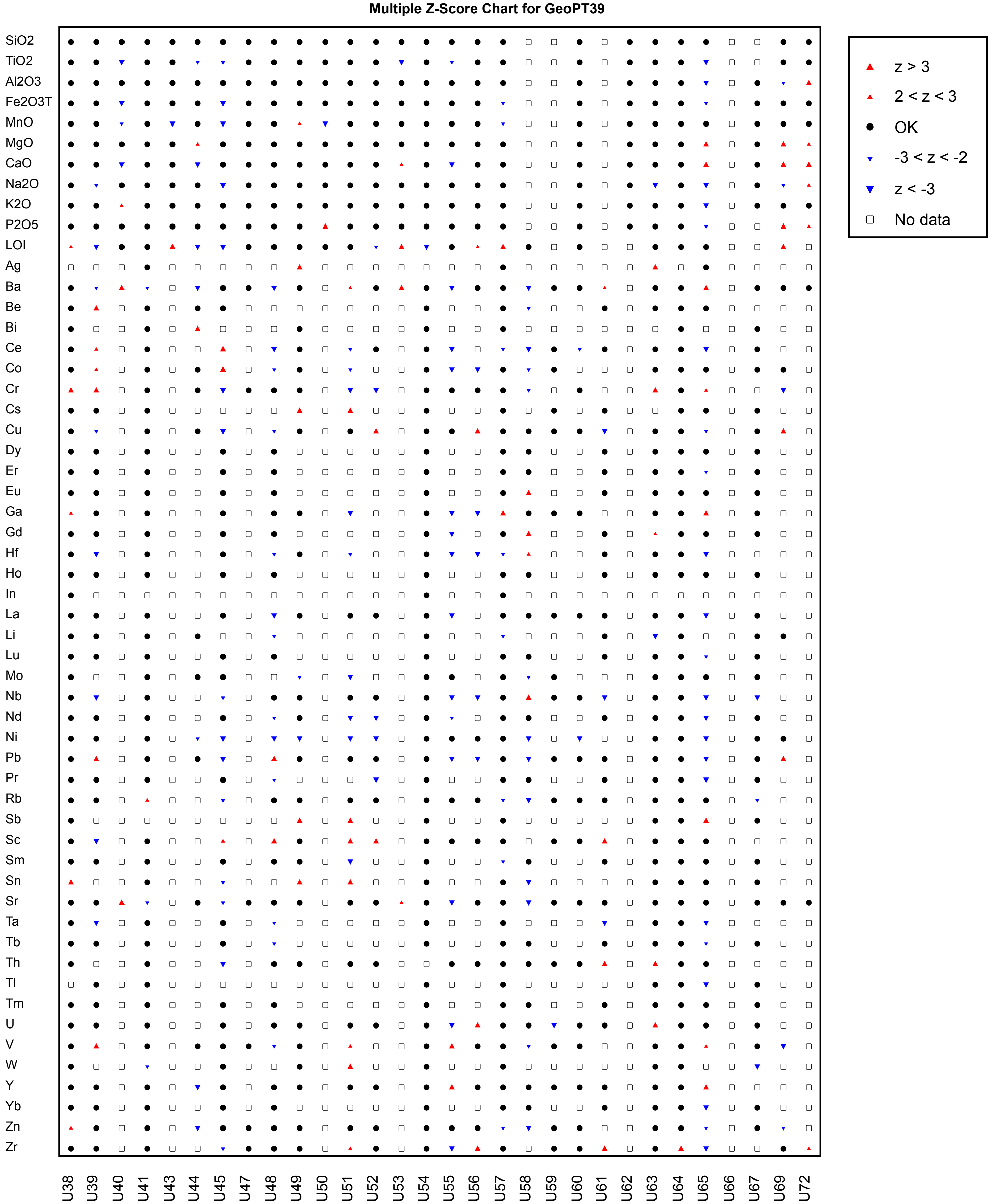


Figure 3: GeoPT39 - Syenite, SyMP-1. Multiple z-score charts for laboratories participating in the GeoPT39 round. Symbols indicate whether or not an elemental result complies with the -2<z<+2 criteria (see key).

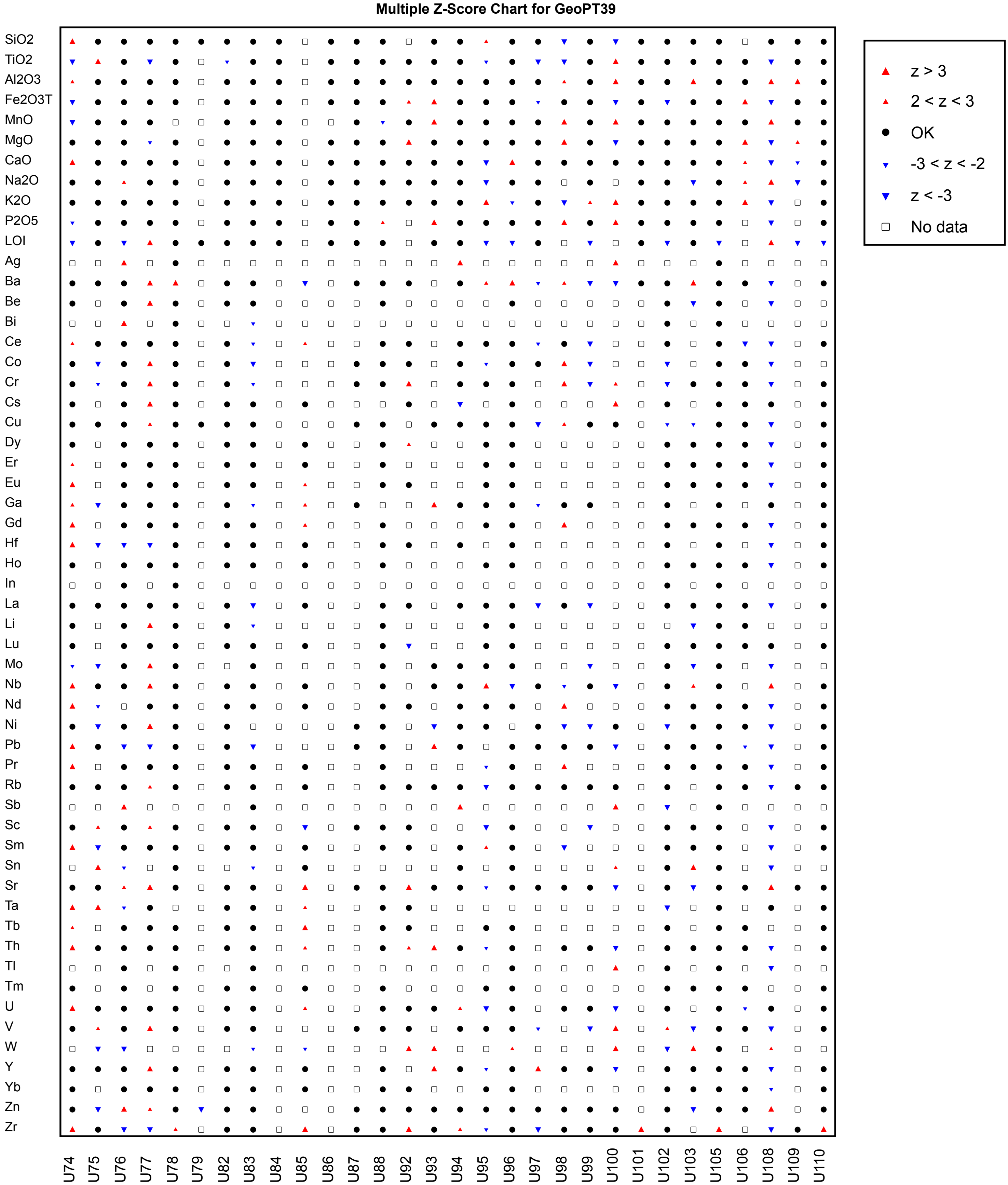
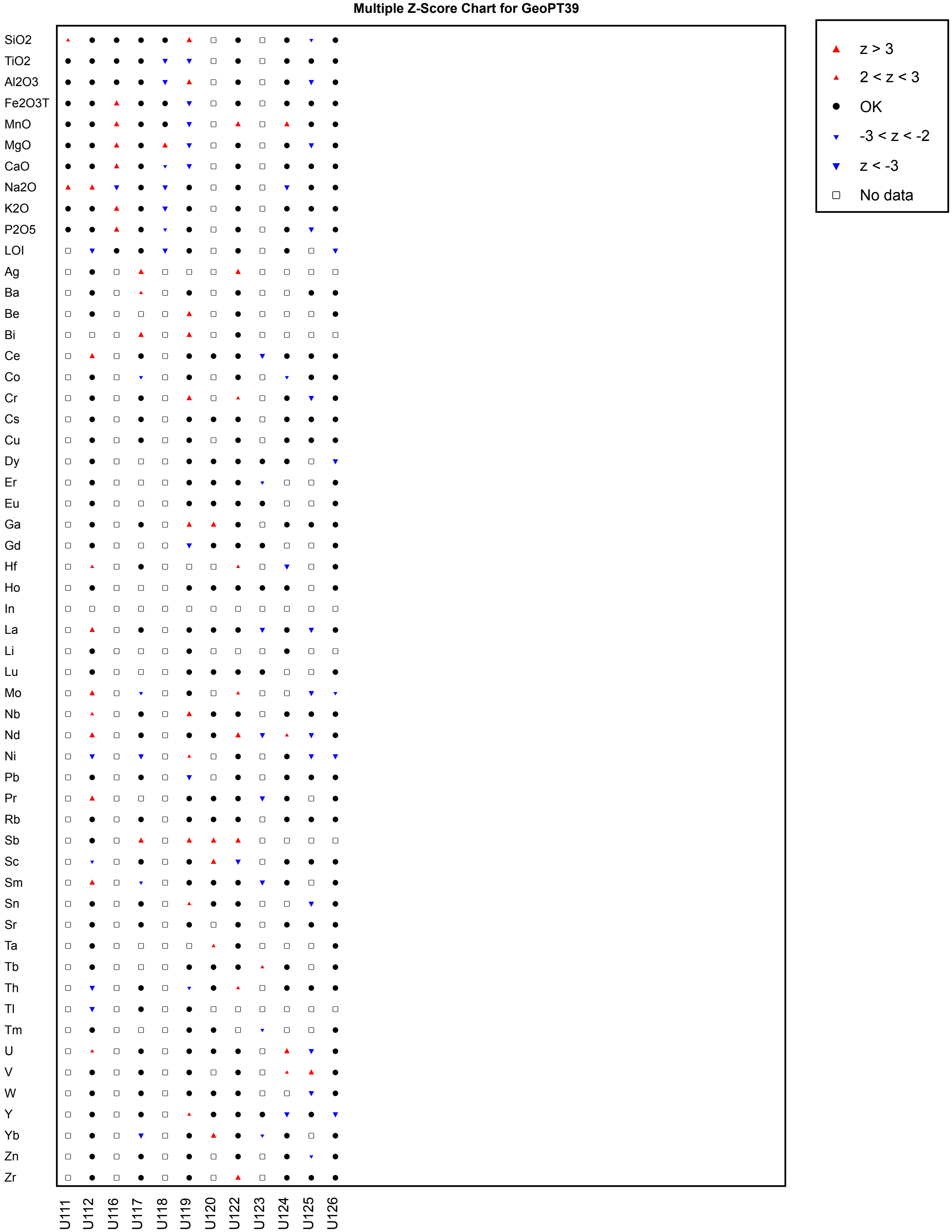


Figure 3: GeoPT39 - Syenite, SyMP-1. Multiple z-score charts for laboratories participating in the GeoPT39 round. Symbols indicate whether or not an elemental result complies with the -2<z<+2 criteria (see key).



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